Health Innovation East Midlands

Surgical Innovation Exchange

Event pack

Thursday 11th April 10-11:30am

Agenda

Time	Item	Lead / Innovator
10:00	**Introduction and housekeeping** • Innovation Exchange - what it is and why it is important • Why the surgical pathway? • Patient feedback that inspired this session • Stakeholder feedback that inspired this session	**Dawn Plummer** - Digital Health Innovation Lead and Deputy Head of Innovation Pipeline Development, Health Innovation East Midlands
10:10	**Innovator pitches** (4 minutes per pitch)	MyOpNotes
		Surgery Hero
		Definition Health - Lifebox
		Portasana
		Feebris
		Tucuvi
	5 minute break	
	Innovator pitches (4 minutes per pitch)	Pulsario
		On The Mend
		MyOp
		Ufonia - Dora
		VitalHub UK
		Remcare
		Polytex
		Pathpoint
11:20	**Tell us who you would like to hear more from**	**Dawn Plummer**
11:25	**Support available and next steps** **Thank you and close**	**Dawn Plummer**

Innovators presenting at this event

myopnotes

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The root cause patient safety issues and inaccurate clinical coding is poor quality documentation in operation notes. myopnotes addresses the problem directly.

To capture high-accuracy, complete data from surgeons, myopnotes uses a library of standardised smart templates. These are written by surgeons for surgeons based on current guidelines and best practice. Three systematic reviews have shown templates significantly improve the completeness and quality of operation notes (Eryigit, 2019 / Stogryn, 2019 / O'Connor, 2022). In collaboration with clinical coders, we identify what information they require for accurate coding and mandate this within the template. The resulting effect is robust documentation that improves patient care, and ensures hospitals are accurately paid for the work they are already doing.

Finally, once high-accuracy data is obtained via our smart templates, we apply rule-based algorithms so that some routine operations can be coded automatically. This allows scarce clinical coding resources to focus on complex operations and prolonged hospital stays and reduces backlogs within clinical coding which are costly to address.

Surgery Hero

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Surgery Hero, an innovative mobile app, delivering a comprehensive prehabilitation programme for elective surgery patients. Through a multifaceted approach, the app combines tailored guidance via audiovisual content and one-on-one health coaching, all accessible on a smartphone.

Seamlessly integrating into existing care pathways, Surgery Hero eases the workload for hospital clinicians, directing resources to patients with complex needs. The app empowers patients to modify key risk factors, focusing on physical activity, smoking cessation, alcohol reduction, improved sleep, and perioperative preparedness.

Patients determine weekly goals and actions based on self-assessment and interactions with their health coach. The approach is ongoing, emphasising personalisation without rigid endpoints, allowing patients to progress at their own pace.

The Targeted Digital Solution provides patients with a 12-week personalised perioperative program, including a dedicated human health coach.

Lifebox - Definition Health

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Definition Health was founded to tackle the challenge of increasing surgical waiting lists whilst delivering the ever-growing importance of a digital future in healthcare and support the NHS's long-term plan of digitisation and Net Zero.

Definition Health provides a digital end-to-end approach to the entire patient journey into one cohesive experience. Via the platform, patients can access all stages of their hospital journey from one account – including customisable health questionnaires, personalised educational media, file sharing and post-operative recovery monitoring.

A recent NHSE funded independent study by Unity Insights and Royal Surrey NHS Foundation Trust showed per 12,000 patients:

- Non-Cash releasing savings: £433k, Cash releasing savings: £132k
- 103 tCO2e saved in travel, 5 tCO2e in paper
- ROI: £1.40 for every £1 invested (40%)

Extrapolated out to the Surrey Heartlands ICS:

- Saving £1.94 million per 43,000 patients
- ROI: £1.50 for every £1 invested (50%)

In a study at SWLEOC, using the virtual ward for follow up only 37 out of 266 joint replacement patient's (14%) required face to face 6-week follow-ups by a consultant surgeon, releasing 22 full days of clinic time whilst the unit readmission rates dropped below the model hospital national average.

Wellola - Portasana

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Portasana® is an award-winning patient care and communication platform, customizable for various specialties and care settings. It integrates seamlessly with core NHS systems, allowing healthcare organizations to create tailored digital care pathways. This reduces follow-up appointments, empowers patients to self-care, and optimises resource allocation.

The platform's simplicity (low code, hard-ware light) and configurability facilitate swift implementation. It encourages self-management among patients, minimising unnecessary face-to-face visits and enhancing operational efficiency.

Additionally, Wellola provides a repository of curated content, including courses and videos addressing common health issues like smoking cessation and diabetes management. Sites can utilise this library or create their own content as needed. In a representative evaluation of over 600 patients across the UK using education courses featured on the platform:

- 95% Have a better understanding of their conditions
- 91% Feel more confident about managing their condition
- 88% Feel more confident about what to do if their condition gets worse
- 59% Have been to hospital less frequently

Feebris

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At Feebris, our mission is to create a world where nobody suffers because they cannot access healthcare. Together with clinicians and patients, we've engineered a best-in-class virtual care platform that empowers users to conduct a clinical-grade exam and triage risk precisely, creating clinical capacity at scale.

Our solution is designed to enable the continuum of care, supporting patients through periods of stable monitoring and episodes of higher acuity. The platform is commissioned by ICSs for virtual care in over 100 sites.

One of the key things that differentiates us is the way we harness the power of AI. In a system like the NHS, where every minute counts, algorithms can improve efficiency, accuracy and streamline processes.

The benefits of this are:

- Clinical reliability: Ensuring no bad/unreliable data is passed onto clinicians
- Process automation: Extracting clinical markers of deterioration to save time and standardise quality
- Proactive risk assessment: Tailored according to relevant clinical guidelines
- Personalisation: Helping to define what is normal and abnormal, particularly key in supporting patients with complex comorbidities.

Tucuvi

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Tucuvi have a CE marked platform for autonomous phone consultations. LOLA is a voice based virtual clinical assistant for patients and Tucuvi Health Manager is a web-based platform for clinicians.

We have a library of over 30 clinically validated protocols that cover use cases across all stages of the patient journey, from referral screening and waiting list monitoring, through to post-procedure follow ups.

Clinicians are able to assign protocols to patients and with the use of advanced algorithms LOLA calls and interacts with them in a natural, conversational way, gathering all the required information and gaining insights that support clinicians to provide safe and responsive care.

The information that LOLA gathers is returned to the platform in a structured way and each protocol and each patient can be configured with personalised alerts to make it easier to deliver more patient-centred care while allowing clinicians to focus on more value-adding activities.

LOLA can also receive calls from patients and speaks over 100 languages, allowing clinicians to gain information safely from patients without relying on interpretation services. Last but not least, the technology and digital literacy required to converse with LOLA is minimum. You simply need access to a phone.

Pulsario

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Pulsario combines precision medicine with AI technology to provide individualised monitoring and management of health, especially those who require continuous monitoring or who have chronic conditions within cardiovascular disease.

Using a combination of medical grade wearable biosensors, mobile applications and secure communication platforms, Pulsario uses proprietary scoring systems to convert medical data into actionable and relevant healthcare provider information.

Pulsario empowers users to manage their health remotely through seamless communications, increase medical compliance for guideline medical drug therapy, reduce hospital admissions, free up General Practitioner time and improve patient outcomes.

Pulsario's unique integration of bio-monitoring technology with real-time analytics enables proactive patient management and improved medical outcomes. It is scalable, user-friendly, and cost-effective, making it an essential tool in reducing hospital readmissions and enhancing the management of chronic cardiovascular diseases pathways. Pulsario is a cutting-edge system that revolutionises healthcare delivery by providing precise, immediate health data to improve patient care.

MyOp – My mhealth

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My mhealth myOp was developed in partnership with the perioperative medicine team at the University Hospital of Southampton. myOp is a universal intervention designed to support and optimise patients before elective surgery; reducing complications, decreasing length of stay and improving efficiency. It combines evidence-based prehab interventions with behavioural change techniques to improve physical and mental fitness and optimize nutrition; promoting a holistic approach to care.

For clinicians, it allows for easy risk stratification of patients, allowing those who benefit from more specialist services to be rapidly identified. It also contains 2-way chat and video consultations allowing reduction of face-to-face appointments. Over 1700 patients have accessed myOp and there are over 1200 active users.

Ufonia - Dora

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Ufonia have developed Dora, a UKCA-marked medical device, which telephones patients to conduct automated, clinically validated consultations - increasing capacity of high-volume pathways.

Dora is currently live at 10 NHS trusts delivering triaging of referrals, pre-operative assessments, post-operative follow-ups and long term monitoring of outcomes. Dora creates outpatient capacity by reducing follow-up clinic sessions by 65%, allowing an opportunity to create new outpatient appointments, invest time in high priority specialties and free clinicians time and allowing them to work at ‘the top of their licence.'

Dora speaks to patients using natural language, and is delivered through a simple phone - call so is highly accessible for patients. As a result, patient acceptability is excellent, with over 15,000 patient’s rating Dora an average of 8/10 for their likelihood to recommend the system. Dora is being rolled out at new NHS trusts and for new care pathways to enable greater access to care more efficiently and at a lower cost.

Vital Hub

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Vital Hub's Elective Care Ecosystem enables healthcare organisations to accelerate digital transformation at scale. It supports the transformation of data capture and analysis, improving patient flow and care. It focuses on three key areas: preparing patients for procedures, tailoring care to individual needs, and enhancing communication.

Vital Hub includes various features to better prepare patients, such as providing educational materials at the right time, remote monitoring, pre-screening and digital preoperative assessments. Along with improved patient satisfaction, these features have demonstrated positive outcomes, including a reduction in theatre cancellations and face-to-face pre-op appointments.

The patient interaction platform empowers caregivers and patients by providing personalised care to support patients with specific requirements, ensuring they receive the necessary assistance in managing their conditions. Effective communication is crucial in healthcare. The Vital Hub ecosystem significantly improves this between patients and clinicians, providing a single source of truth for all communications and pathway needs.

Benefits include optimised clinical resources, improved accessibility for patients and effective backlog management. Quantitative benefits include reduced waiting lists and zero on-the-day theatre cancellations. Overall, Vital Hub revolutionises healthcare delivery by enhancing patient preparation, tailoring care, and improving communication. It enables all parties to collaborate effectively, leading to improved outcomes and a seamless healthcare experience.

Remcare

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Surgical pathways are not always optimised to individual patient risk, leading to unnecessary appointments for low-risk patients, resource deficit for high-risk patients, delays to treatment and poor patient satisfaction.

Remcare enables customisable remote data collection/monitoring at every step of the patient journey. The algorithms on the platform automatically risk stratifies patients and displays this in a traffic light pattern on the Hospital dashboard. This allows redesign of patient pathways customised to patient risk at every step of the perioperative pathway while empowering patients with tailored information on the app:

- Pre anaesthetic assessment pathways – Early risk stratification of patients on waiting lists allows identification of patients with multiple co-morbidities and health inequalities allowing preoptimisation to improve outcomes. Our real-world experience has shown a 30% increase in productivity (in preassessment clinics) by identifying low-risk patients suitable for a “light touch preassessment”, releasing clinic capacity.
- Validation of waiting lists – Automated 3-monthly monitoring of patients allows clinical prioritisation of lists based on patients’ current health and condition status and identifies up to 16% of patients who no longer need surgery.
- Surgical follow-up clinics – Remote monitoring and early identification of poorly performing patients allows prompt intervention and minimises unnecessary appointments for low-risk patients, reducing clinic burden by 60%.

Polytex

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Polytex is a game-changing surgical innovation that puts hygiene first. It's designed to ensure doctors always have the right clothes, keeping surgeries clean and safe. By tracking inventory, Polytex prevents shortages of essential items like scrubs and gowns, making surgeries run smoothly and patients receive top-notch care.

One of the major benefits is cost saving. Polytex keeps tabs on what's used, so hospitals don't have to keep buying new gear unnecessarily, allowing them to allocate funds wisely for better healthcare services.

Most importantly, Polytex prioritizes cleanliness. It guarantees fresh and germ-free clothes and linens, reducing the risk of infections during surgeries. Its easy-to-use automated systems maintain high hygiene standards without burdening staff, ensuring a safe environment for medical teams and patients alike.

In summary, Polytex isn't just about managing clothes; it's a simple yet powerful tool that revolutionizes surgical operations by emphasizing hygiene, saving costs, and promoting safety throughout healthcare facilities.

Open Medical – Pathpoint

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Pathpoint ePOA is a cloud-based electronic pre-operative assessment system designed to streamline the management of patients scheduled for elective surgery. It aids clinicians in assessing patients' readiness for surgery, making informed treatment decisions, and identifying those who may need additional support through prehabilitation or health optimization. The process involves collaboration among healthcare professionals, including staff nurses, anaesthetists, and surgeons, to ensure organised patient management.

When a patient is scheduled for surgery, a POA pathway is established within Pathpoint ePOA, triggering the sending of digital patient questionnaires via an automated text message. This allows patients to provide information on their health condition without the need to travel. The information collected is then used to calculate a complexity score, categorising patients into low, medium, or high complexity levels. Based on this score and the patient-provided information, follow-up appointments and appropriate health optimization programs can be planned swiftly.

The digital questionnaire enables clinicians to screen all surgical patients and risk-stratify them from the outset. This provides ample time to optimise patients' health through tailored prehabilitation programs. From the patients' perspective, Pathpoint ePOA promotes greater patient involvement in managing their health. Overall, this digital system enhances the coordination and management of elective surgeries, a step towards achieving better treatment outcomes for patients.

Other innovators in the surgical pathway

Innersight 3D

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Innersight is a world-leading surgical planning platform which is transforming the way surgical teams discuss and approach their operations.

Innersight's software allows expert users to reliably generate an accurate virtual 3D model, from a patient's routine standard-of-care scan.

The virtual model can incorporate imaging data from multiple modalities to best assist the surgeon in fully understanding the patient anatomy before the operation, and to help guide them during the operation.

Surgical planning software tools have the potential to improve patient care, reduce operational costs and enable a more collaborative surgical planning experience.

YouDiagnose

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Following a surgical procedure or while awaiting treatment, patients frequently experience a disconnect from their parent surgical team, resulting in miscommunications and inadequate care. For instance, a patient misinterpreting postoperative calf swelling may not seek necessary emergency care. Care from emergency or community physicians lacking full patient history may overlook specific needs like required anticoagulants. This disconnect prevents the surgical team from staying informed about the patient's condition, hindering personalised healthcare.

YouDiagnose CDSS (YD-CDSS) utilizes AI across multiple platforms like chatbots, Alexa, and typed or handwritten notes to enhance early detection and post-operative care in healthcare. By analysing patient conversations, and considering their medical history and background, AI optimises predictive analytics and educational engagement by employing audio-visual aids (image, videos) for comprehensive education and detailed history collection. It also streamlines triage and risk assessment by prioritising patients according to their condition's severity, thus improving patient care and providing insights on treatment urgency.

Remote monitoring with YD-CDSS improves at-home patient care, streamlines urgent resources, and eases administrative tasks, enhancing communication and patient satisfaction. It cuts healthcare costs, lessens the environmental impact, and enables at-risk patient home care, leading to fewer hospital stays and better health outcomes with reduced provider effort.

AI Rehab

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Up to 70% of patients do not complete their rehab, this leads to poor patient outcomes, increased healthcare costs and time off work. The NHS has identified digital support tools as a solution and have invested £400 million. AI Rehab is a start-up that works on developing medical devices that improve physiotherapy outcomes.

Slider, is for patients with osteoarthritis in their knee. Slider is a sliding disk placed under a patient's heel and is equipped with a force plate and laser trackers to collect data. Slider keeps patients engaged with their physiotherapy through gamification. Slider collects data on the adherence and accuracy of the patients exercises. Slider is being used in NHS Scotland for patients before and after their knee surgery. The Open University have published a peer reviewed feasibility study independent of us in which 93% of patients were satisfied and all agreed they would user Slider again.

Slider's AI insights allow AI rehab to offer optimised remote physiotherapy. This means patients can take their physiotherapy with them to work, home or on holiday. AI rehab have devices they plan to bring out for hip osteoarthritis, neurological conditions and spine and sports injuries.

C2-ai

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C2-ai helps to transform the 'waiting list' into a 'preparation list'. C2-ai is a ground-breaking initiative led by NHS Cheshire and Merseyside ICB and 30 other hospitals across England that are using C2-Ai RiskTriage to identify individuals at high risk of post-op complications on the waiting list and provide targeted support.

- High-risk individuals are continuously reevaluated based on dynamic individualised risks that include impact of social determinant of health (overall mortality and morbidity as well as specific perioperative risks) and those patients at risk of decompensation and impacts risk
- High risk patients are referred for individualised prehabilitation to mitigate specific risks and for remote patient surveillance to create semi-elective lists and emergency admission avoidance pathways (funded by HTAAF)

High volume low complexity cases are fast tracked to cold sites and regional surgical hubs.

C2-AI Observatory has been deployed at all the acute Trusts in the C&M ICS to track casemix-adjusted clinical outcomes. The analysis can be segmented by Trust, site, speciality (sub-speciality) and procedure to identify excellence in care and opportunities for quality improvement and outcomes for vulnerable groups impacted by social determinant of health (SDoH), such as ethnicity and deprivation to fulfil NHSE mandates to measure and reduce health inequalities.

Deep Medical

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Deep Medical uses AI to expand clinic capacity. Their AI can predict no shows, and short notice cancellations allowing providers to dynamically template clinic capacity, so the clinical workforce is perfectly aligned with patient demand.

Deep Medical also power this AI to contact each patient through personalised communications, personalised channels and personalised reminder schedules. This ensures the patient attends, cancels or reschedules ahead of time, improving engagement and attendance rates.

Where there is a clinical risk due to missing an appointment the AI helps to identify this such as in frail patient groups where poor compliance is a clinical concern and highlights them to clinical teams, so a more tailored and people-centred solution can be provided.