



Innovation Programme



HSE Oifig an Stiúrthóra Seirbhísí | Office of the Nursing & Altranais & Cnáimhseachais | Midwifery Services Director



A Spark of Inspiration

The Spark Innovation Programme is a frontline, staff-led initiative that seeks to support, promote and recognise innovation amongst healthcare staff.

The Health Services People Strategy 2019–24 sets out a vision of an exceptional employee experience that engages the talent and nurtures the leadership capability of all individuals and teams working together to deliver safer, better healthcare. Spark exemplifies this vision throughout all of its activities.

The Spark Innovation Programme was initially established as a national programme to empower and engage Doctors at the beginning of their careers. The opportunity to develop one's ideas is central to keeping staff engaged and inspired, and makes it easier to recruit and retain the high quality graduates of our world class medical education system.

However, Spark is not solely about successful ideas but also about the potential shared learning for the system – creating a great place to work where healthcare professionals are empowered and encouraged to bring all of their creativity, imagination, problem solving skills, love of design, and passion for the wellbeing of patients.

The power of this vision has seen Spark expand in recent years to include all healthcare professionals, and every employee of the HSE. This has been achieved with thanks to partnerships and ongoing support from the Office of Nursing and Midwifery Services Director (ONMSD), National Doctors Training and Planning (NDTP), and the National Health & Social Care Professions Office (NHSCPO).

In addition to supporting innovation practice through funding calls, new initiatives, events and training opportunities, the programme also offers clinical staff the opportunity to undertake a Fellowship Programme. Each year, the programme recruits clinicians from across the health service to join the team, learn about innovation in the Healthcare space, contribute to research and develop their own professional skills in areas such as intrapreneurship entrepreneurship, business and design.

The Spark Programme is committed to the implementation of Design Principles and Innovation methodologies to deliver better healthcare for all. The programme leverages the intrinsic motivation of frontline healthcare workers to become active agents of change. With the support of the programme, they successfully design, develop and deploy novel solutions to complex challenges for their patients, their colleagues and the health service at large.



Aims & Objectives

The aims and objectives of the Spark Innovation Programme align closely with the HSE Corporate Plan 2021–2024 ensuring that activity receives strong support from the centre of the organisation.

- They promote the development of innovation culture to embed innovation as a foundation of the organisation at every level.
- They advocate for innovation capacity building across the organisation to ensure that innovation activity is identified and supported as a strategic priority.
- Finally, they seek to build capability through skills and mindset development to unleash the innovation potential of the frontline

01. Engage & Empower Frontline Staff

We seek to empower staff to deliver change, identify barriers and implement improvements for patients and service-users.*

- Promote and celebrate initiative, creativity and collaboration
- Create funding streams for staff-generated solutions to identify problems and opportunities
- Enable access to and training in design and innovation methodologies
- Provide mentoring
- Share success stories

02. Create a Supportive Ecosystem for Health Innovators

With a shared vision of improving patient and service-user experience, we will work together more effectively and overcome barriers that have made change more difficult in the past.*

- Create an innovation-friendly workplace
- Promote collaborative work practices
- Normalise innovation practices
- Promote the role of human-centred design in the health system
- Promote early engagement with emerging technology

03. Develop Systematic Capability

To create this environment... an increased focus on teamwork and collaboration... education and training programmes... and developing necessary structures (e.g. locally based change and improvement networks, communities of practice etc)*

- Leverage existing resources and form strategic partnerships
- Source expertise
- Create pathways for innovation, innovators, and innovation processes
- Build an evidence base to illustrate value

Pillars of the Spark Programme

In pursuit of our organisational aims and objectives, we have established a strategic framework built upon seven core pillars of activity. These pillars provide the solid foundation for our operations, guiding our efforts to maximise engagement, innovation and impact.

At Spark, we are constantly re-evaluating and re-iterating our activities, and in empowering the frontline healthcare workers to be innovative and disruptive, we apply those same principles to all elements of our programme. We are now operating through 7 Pillars:



Engagement

Providing multimodal engagement opportunities for our innovation collective across the health service.



Network

Gathering and connecting our internal and external partners.



Initiatives

Creating opportunities to develop skills, secure micro funding, access mentorship and embed innovation.



Research

Contributing to the body of research in the frontline innovation space both nationally and internationally.



Design

Implement user informed change and innovation shaped by the principles of Human Centred Design.



Pioneering

Leading the way with new products, services and ways of working through pilots and validation studies.



Professional Development

Developing our staff for agency and impact.

*HSE Corporate Plan 2021–24

Spark Seed

The frontline staff in our health service are best placed to identify key problems and implement meaningful solutions. Spark Seed is about enabling them to sow the seed of innovation and cultivate the solution to grow and bear the fruits of improvement.

The Spark Innovation Programme recognises that frontline staff are best placed to identify key problems faced by service users and care providers alike, and implement solutions to those problems.

Offering funding in combination with mentorship and training equips staff with the skills required to effect meaningful change. Spark Seed Funding is an initiative whereby frontline staff can apply for micro-funding and other supports for innovative projects that will improve patient outcomes and service delivery. The initiative focuses on small, rapidly implementable projects which take an approach to innovation and change from the ground up. While small in scale, these projects have great potential to make meaningful improvements to patient care, increase service capacity and generate cost savings.

Applicants submit a brief project overview, with the best solutions shortlisted to attend a Design Thinking workshop where ideas are refined with support and mentorship from the Spark team. The workshops are facilitated by expert designers. Workshops are held in-person, online and in hybrid formats.

This seed funding call is open to Non-Consultant Hospital Doctors, Consultants, Nurses, Midwives and Health and Social Care Professional applicants. The response to the Spark Seed Funding call grows year on year with excellent representation from right across the different professional groups that make up the frontline of the HSE

Spark Seed Funding

- **Targeted at NCHDs, Nurses, Midwives & HSCPs with emphasis on multidisciplinary teams collaboration**
- **Open all year round for applications with multiple calls per year for small scale projects**
- **Micro funding up to €3,000 for individual and €5,000 for groups**
- **Best ideas invited to attend CPD CEU accredited Design Thinking workshops**
- **Mentorship and support also provided**



A Selection of Funded Projects

01 The Exchange - Old Space With A Familiar Face.

Paul Phelan,
Clinical Nurse Specialist
Psychiatry



The Problem:

A Community of Inpatients seeking face-to-face contact with family during COVID visitor restrictions.

The Solution:

A familiar 'Old-Style Irish Phone-box' housing modern technology (Tablet). This provides a private space for face-to-face communication.

The Benefits:

Emotional needs: Enabling patients to contact loved ones, whom are the source of support pre- and post-hospital. Social needs: Enabling contact with friends and family - therefore retaining a sense of connection and belonging to home and their community. Functional need: The Phone box/Connection Hub would provide a safe, confidential space to freely access visual contact with family.

02 Paediatric Radiology Training Tool

Niamh Beirne
Paediatric Registrar
Orla Callender
Advanced Nurse Practitioner
Dr Nuala Quinn
Paediatric Consultant
Dr Yusra Sheikh
Paediatric Radiology Consultant



The Problem:

There is no dedicated paediatric radiology teaching at undergraduate or postgraduate level. In-coming doctors face decisions to order and interpret scans, often with little experience or direction.

The Solution:

Developing a dedicated Paediatric Radiology app and website with modules on commonly requested images.

The Benefits:

A reduction in inappropriate imaging referrals, and reducing paediatric patient exposure to unnecessary radiation. Improved trainee interpretation of imaging and an increase in confidence and morale. Immediate patient care in the ED; reduction in missed findings. A reduction in calls and out of hours requests.

03 After NICU

Amanda Scott
SLT
Sinead Donaghy
Lactation Consultant
Naomi Hastings
Dietitian
Sarah Campbell
Parent and Midwife



The Problem:

1 in 10 babies are born prematurely. Feeding is the biggest issue reported by mothers of infants after 'NICU discharge'. 42% of babies who were born prematurely or required support from the NICU continue to have feeding problems during the first year, 1 in 3 of these falter with feeding when they go home. Where babies experience desaturations on feeding /weight loss/ failure to thrive they end up being re-referred into NICU

The Solution:

'After NICU' is an MDT feeding support and advice service for families & babies who have spent time in the NICU. Traditionally supports are provided when difficulties arise rather than being preventative. After NICU provides a drop-in feeding support group for families and babies providing peer support and expert advice from the team.

The Benefits:

Parents of children availing of the drop-in feeding support groups report an increase in confidence in dealing with feeding problems leading to a reduction in adverse events and readmission rates back to NICU after discharge.

04 The Fair Project: An accessible air quality information resource

Dr. Sandra Green
Respiratory Registrar



The Problem:

Poor air quality is a major cause of disease burden in Ireland, which costs the state over 2 billion euro annually. Exposure to air pollution in childhood can have significant repercussions, right into adulthood. Emergency department attendances for respiratory complaints increase at times of poor air quality

The Solution:

An informative and engaging video display - highlighting local air qualities and the air quality of surrounding areas. It will also explain the harms of exposure to poor air quality, the steps we can take to improve our local air cleanliness and ways to mitigate against exposure to air pollution.

The Benefits:

Patients informed and empowered to prevent exacerbations of respiratory conditions. Potential for the model to be reproduced in paediatric hospitals across the country.

Spark Advance

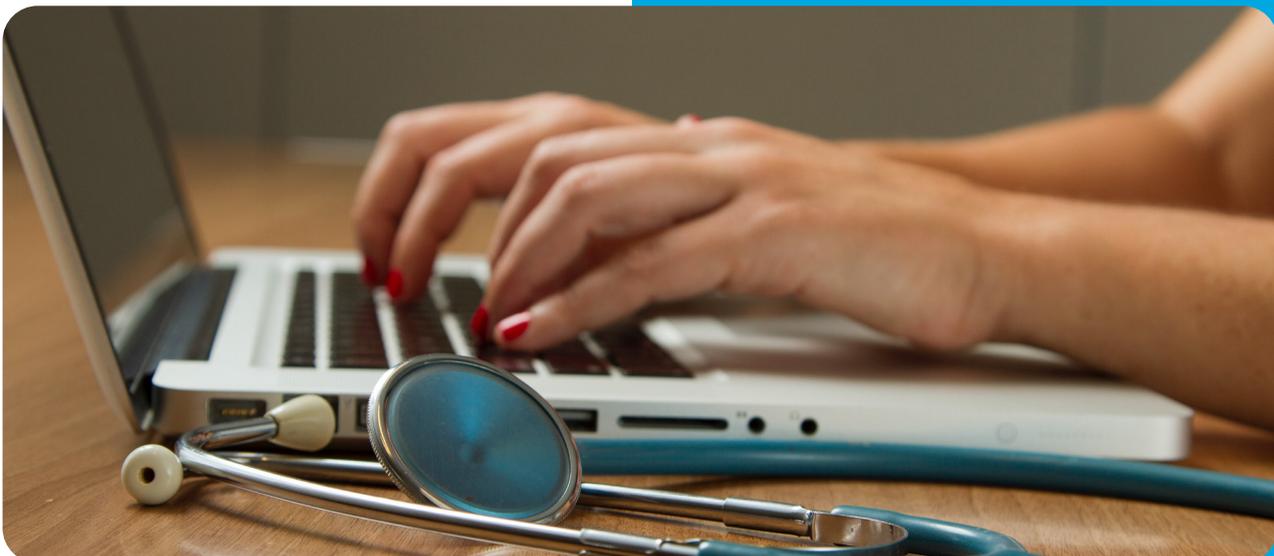
'Spark Advance' complies a number of advanced initiatives within the programme. These initiatives seek out responses to key clinical challenges and strategic priorities from across the health service. They are designed to target projects that can have a significant impact on issues that affect the health service at a local, regional and national level.

The Consultants Innovation Fund (2019), the Hospital Innovation Fund (2022) and the Community Innovation Fund (2022) were developed as a collaboration across multiple stakeholder groups. These funding streams recognised both the ability of clinical sites to identify opportunities for change and innovation and the ability to deliver that change and innovation, at the point of care, through collaboration between clinical and senior management teams.

By providing higher lever funding (up to €60,000), teams in both acute and community settings have been empowered to create meaningful change at a local level and demonstrate impact that can be scaled and applied on a national level. Teams undertaking innovation activity under our Spark Advance umbrella exhibit some unique features. These include the independent assembly of cross-functional teams inside and between clinical settings and locally negotiated and agreed project scope and roles. These independently constructed partnerships and projects indicate an effective model for transformation within healthcare as we strive for the delivery of integrated clinical services that deliver optimum value for patients.

Features of the Innovation Fund:

- Nationwide call
- Once-off non-recurring funding
- Investment in new equipment, training opportunities or exploration of novel ways of working
- Delivering cost savings, capacity increases, best practice care delivery or improved patient experience
- Multi-disciplinary applicants with Senior Management support



A Selection of Outcomes

01

Beta-D-Glucan Testing: Small Test – Big Impact

Dr Breda Lynch
Microbiology
The Mater Misericordiae University Hospital.



The Problem

Fungal infections are notoriously difficult to diagnose, and delays in treatment can lead to poorer outcomes for patients. That is why patients are often started on broad-spectrum antifungal therapy until an exact diagnosis is made.

The Solution

Breda identified that the Beta-D-Glucan (BDG) test, currently available only outside Ireland, is a useful tool for indicating presence or not of a fungal infection.

The Benefit

Project successfully implemented with a saving of €81,064 based on current antifungal pricing
Expected annual savings in MMUH estimated at €123,780
Turnaround time improved from 109 days to less than 3 days, with an average of 1 day. Shortlisted for Irish Healthcare Awards 2021 – Hospital Project of the Year
Winner of Bright Spark Award 2021

03

Integrated Primary Care OT led Hand and Wrist Clinic

Michelle O'Donnell
Clinical Specialist OT



The Problem

Unnecessary referral to Consultant Orthopaedic Surgeons and Consultant Plastic Surgeons for patients with hand and wrist pathology.

The Solution

Introduction of evidenced based triage by OT at OT-led hand and wrist clinic with onward to referral to either Orthopaedic Surgery or Community OT as indicated.

The Benefit

Reduce waiting times from 36 months to 4 weeks
Eliminate 69% of unnecessary referrals to Orthopaedics and Plastic Surgery Remove a minimum of 280 patients per year from the waiting list.

02

Headache Management Pathway at Tallaght University Hospital

Dr. Petra Mihaylova
Neurologist



The Problem

Headaches make up 1-4% of all Emergency Department Presentations. Up to 1 in 3 patients are admitted for imaging 'just in case', despite a very low risk on headache risk assessment via International Classification of Headache Disorders.

The Solution

Restructuring of services to include:

- Safe Discharge of Low-risk Headache patients
- Increased utility of outpatient MRIs (ring fenced onsite)
- Early follow-up at consultant-delivered clinic after appropriate imaging

The Benefit

- 150 Bed Days saved ~€120,000
- Unnecessary CT Scans Avoided
- PET reduced
- Patient experience enhanced

Early results from 3 month pilot – €9,000 invested

Spark Ignite

Spark Ignite is an annual competition that has been developed to support frontline innovators who have an idea that could be commercialised and brought to market or an idea that has the scope to be scaled across the organisation for mass benefit.

The Spark Ignite competition has been developed and delivered in collaboration with healthcare innovation partners Health Innovation Hub Ireland (2020-2022) and EIT Health UK-Ireland (2023).

The goal of the Spark Ignite competition is to help frontline staff in the health service to develop solutions to the challenges faced by care providers and patients and solve those problems through the lens of product or service development. Spark Ignite is open to all disciplines and departments within the HSE, enabling staff to develop their ideas through the validation of clinical need and determining the market for their proposed solution, product, or service.

The competition provides an engaged cohort of the HSE with the skills and means to assess innovative ideas, understand the process and requirements to bring them towards reality, and employ these skills to their current work practices.

Developing a culture of innovation from the ground level, by empowering staff to develop their ideas that will ultimately deliver benefits to patients, improve efficiencies, reduce costs, and deliver new products, processes, technologies and services, makes Spark Ignite an approach that is scalable to other departments within the public sector.

How it works

- A bespoke healthcare entrepreneurship programme
- An opportunity to pitch at the Spark Summit
- Access to a fund of up to €5000 towards idea development
- Access to a pan European healthcare mentorship programme
- Access to a pipeline to further supports within the healthcare innovation network



Spark Ignite Case Studies

01

The Rapid-Access Online Active Back Care (ABC) Program



Aoife Collins,
Senior Physiotherapist

The Problem:

Back pain is the most commonly reported health condition in Ireland, 80% of Irish adults experience back pain at some point in their life. Back pain is estimated to cost the country more than cancer and diabetes treatments combined. People with persistent back pain are often referred to an orthopaedic specialist, this wait can be up to four years and even when seen, less than 10% require surgery, with the remaining 90% discharged back in to primary care. This delays their engagement with physiotherapy

The Solution:

The Rapid-Access Online Back Care (ABC) Programme is an award-winning, evidence-based digital group programme developed via an integrated software platform and delivered by Salaso Health Solutions. This easy-to-use, GDPR-compliant software provides a patient portal and smartphone application, linked with a platform for the physiotherapist who will devise and manage the patient's treatment programme.

The Benefits:

By using an online format, clients who struggle to attend a clinic can access their physiotherapist without the exertion or expense of leaving home. Clients will be able to repeat the programme themselves at any time.

The programme aims to save up to 20% of physiotherapists' time each week, increase throughput and decrease waiting times. If successful, the estimated savings to the exchequer could be up to €173-€259 million in a 3-5 year period.



02

Remote Learning in Bronchoscopy using a Low-Fidelity Airway Simulator



Dr Kevin Deasy,
Dr Marcus Kennedy

The Problem:

The COVID pandemic highlighted the requirement for distance simulation training. Recently, both the RCPI Imrie and American Institute of Medicine reports have highlighted the need for a transition from experience-based training without outcome and safety assessment to proficiency-based simulation training as the main target of development of undergraduate and graduate medical training. Simulators for bronchoscopy are costly and range from high end simulators costing over €100,000 to "low-cost", still costing €5,000-€10,000.

The Solution:

The goal of this project was to develop a low-cost biosimilar device which can be used in conjunction with a single-use bronchoscope for less than €300. The project proposed the development of a flat-pack bronchoscopy kit and a pleural ultrasound kit for home assembly and remote learning. The ultimate goal for this project was to develop a formal, well researched, simulation program encompassing real world and distance learning via remote video platforms using the flat pack simulator

The Benefits:

This project will allow flexibility of learning and facilitate remote engagement and invaluable skill development.

Spark Design

Healthcare delivery is complex and the resulting problems within healthcare are complicated, requiring intelligent and creative solutions. At Spark, we believe in 'Human Centred Design' as an effective methodology to address healthcare challenges.

Our goal is to embed Design Principles right across the healthcare system. Great Design is inclusive, pragmatic and question the status quo.

Design Thinking and Design Practices are invaluable resources that help potential innovators structure the innovation process, collaborate, and set key milestones for each stage of a project. We at Spark are passionate about the use of design principles in healthcare. We strive to integrate with the design community and encourage design thinking and user-centred design in all of our initiatives.

In addition to cultivating Human Centred Design mindset and capabilities at the frontline, we are also dedicated to placing Designers within healthcare settings as part of the core multidisciplinary team. The 'Designers in Residence' programme pioneered by Spark within Public Services helps to deliver Design informed and Design led projects right across the Irish Healthcare System.

How it works

- Promoting design practices in the workplace
- All Seed / Ignite funding applicants attend Design Thinking and Innovation workshops
- Matching designers with Seed and Ignite projects to maximise impact
- Designer in Residence
- Design Challenges / Design Weeks
- Linking with the Design Community for initiatives such as our COVID Design on the Frontline initiative.
- Engaging in academic partnerships and research activity to expand and validate the impact of Design in healthcare.



Design in Healthcare Projects supported by Spark

01 Increasing therapy hours for patients



**Peamount Healthcare,
Dublin**

The challenge of meeting recommended rehabilitation therapy hours is multifaceted one that faces all rehabilitation units both locally and internationally.

In order to address this 'wicked problem' in healthcare, a design led intervention is currently live at Peamount Healthcare in collaboration with the HSE Spark Innovation Programme and the National College of Art and Design (NCAD).

The aim of the project is to first understand the challenges for patients and the organisation in delivering optimum rehabilitation to patients and then to reimagine how we can maximise rehab access through Human Centred Design.

03 Sim-u-skin



**Mater Misericordiae
Hospital, Dublin**

An estimated 15-20% of GP consultations relate specifically to skin, yet it is recognised internationally that GPs generally lack adequate training in dermatology.

Sim-U-Skin has been developed as a training aid by a team of Clinicians and Designers to address this challenge. It consists of a number high fidelity skin models that mimic the look and feel of commonly seen skin diseases to aid accurate diagnosis.

02 StrokeLINK



**Mater Misericordiae
Hospital, Dublin**

1 in 5 Irish people will suffer a stroke at some point in their lives, and the results can be life-changing to patients and their families.

Patient surveys show patients feel afraid and unprepared to meet the challenges of returning home following a stroke, with many not knowing who to turn to when they need support.

A team of NCAD designers worked with a Clinical Multi-Disciplinary team to develop and deliver a range of supports that can help patients to navigate their journey back to health after stroke.

04 Max-Fax Project



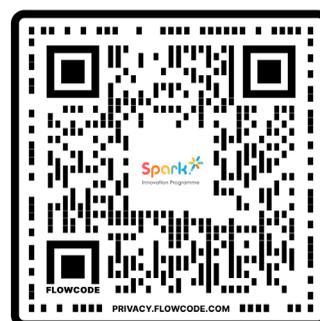
James's Hospital Dublin

Surgical procedures to address head and neck cancer can have a significant impact on the patient, leaving them with long-standing and transformative changes to their anatomy. The resulting psychological and physical burden for patients can be substantial.

The Max-Fax project involved a collaboration between Designers, Surgeons and Clinical Technicians responded to the challenge of developing a more 'life-like' prosthetic nose that could be worn by patients between their primary and reconstructive surgeries.



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