



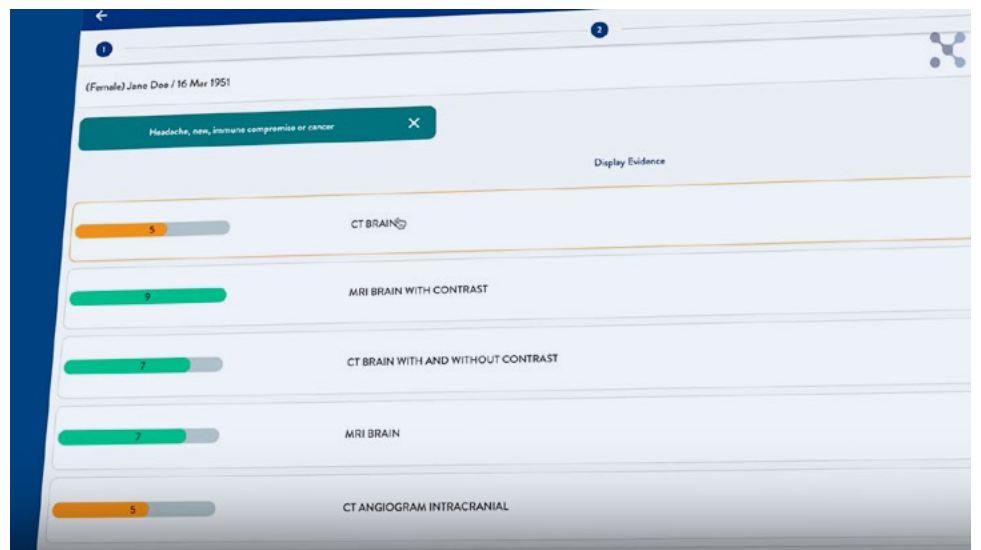
## About Health Innovation Hub Ireland

Health Innovation Hub Ireland (HIHI) was established by the Department of Business, Enterprise and Innovation and the Department of Health, supported by Enterprise Ireland (EI) and the Health Service Executive (HSE) to drive collaboration between the health service and enterprise. We offer companies the opportunity for pilot and clinical validation studies and the health service access to innovative products, services and devices that they may not otherwise be exposed to. HIHI is built on the recognition that collaboration with enterprise can benefit patient care, patient pathways and outcomes.



xWave Technologies was founded in 2020 in Ireland by a leading group of radiologists who wanted to create intelligent solutions for the problems they were facing in their day-to-day work. The company is led by experienced digital transformation executive Mitchell O’Gorman (CEO) with support from a world-class team with backgrounds in healthcare, finance and software development.

Their mission is to use brilliant technology and data analytics to ensure that patients worldwide receive the best test first, delivering improved patient outcomes and multi-billion euro savings for health payers.



## The Healthcare Challenge

Radiology is a complex and continually changing field with many different types of imaging now available. As a result, it is not always clear which test is best for a patient and there is no easy way a referring consultant or GP can access specialist radiology support to help them make their decision. Global research has shown that between 20% – 50% of advanced imaging carried out on patients (e.g. MRI, CT) can be unnecessary for that patient ([www.fda.gov/radiation-emitting-products/initiative-reduce-unnecessary-radiation-exposure-medical-imaging/appropriate-use](http://www.fda.gov/radiation-emitting-products/initiative-reduce-unnecessary-radiation-exposure-medical-imaging/appropriate-use)). This can result in delayed diagnosis for patients, unnecessary exposure to radiation and unnecessary costs for health payers. Existing referral systems can also be problematic as they are run on an ad hoc mix of fax, letter and email, which makes it difficult for referrers and radiologists to keep track of a patient’s progress throughout the investigative process.

# The Healthcare Solution

xRefer, xWave Technologies' smart radiology referral platform, tackles both issues by integrating radiology guidelines seamlessly into their cloud-based referral platform which can also provide the referrer with a full audit trail of the patient's journey through the radiology workflow.

Clinicians using xRefer input key patient information and clinical indications and the system uses a numerical score (based on European Society of Radiology guidelines) to rank the suitability of the available tests. The system also indicates the level of radiation associated with each test to avoid patients being exposed unnecessarily. Further functionality includes digital justification, digital vetting and digital protocolling for radiology teams and digital chat to easily connect radiologist and referrer.



## HIHI Role

Feedback from various clinical personnel and experts was required early in the development of xRefer. HIHI recruited a multidisciplinary group of healthcare professionals to engage with the company and provide feedback on the product. The interaction, hosted and managed by HIHI, provided the company an opportunity to engage with the people best placed to validate their solution. This feedback and the subsequent set up of an expert panel has helped xWave Technologies drive xRefer toward market and ensure that it meets the needs of the patients, the clinicians, and the healthcare system.

## Outcome Report

xWave's innovation journey with HIHI was through a series of meetings with key opinion leaders and experts to assess and provide feedback on xRefer. This feedback helped shape the product before embarking on a live pilot in the Royal Victoria Eye and Ear Hospital in Dublin in early 2021 with HSE Digital Transformation. The ability to create, send and protocol radiology referrals using both smartphone Apps and web has resulted a 99.6% reduction in the average referral transit time, meaning that patients can get scheduled and scanned more quickly. Furthermore, the use of the xRefer platform has seen a significant positive impact on referral appropriateness. As a result, xWave are in discussions to roll xRefer out across a number of public and private hospitals in Ireland and have just secured their first contract with an NHS Trust in the UK. xWave Technologies became an Enterprise Ireland High Potential Start Up (HPSU) in 2021, a prestigious designation for start-up businesses in Ireland. They have recently raised funding from private and public investors to grow their engineering and sales teams and to ramp up operations across Ireland, the UK and Europe. They have also started development of a world-first Intelligent Clinical Decision Support system (iCDS) that will use AI and deep learning to improve and personalise the referral workflow for medical diagnostics.

## Testimonial

*"Health Innovation Hub Ireland provided essential support in the early days of xWave Technologies. Our journey started in early 2020, just as the country was being shut down by the Covid-19 pandemic. As we were unable to visit hospitals, HIHI were able to provide us with experts that could provide us advice and feedback that shaped the development of our xRefer platform. That expert input enabled us to deliver a world-class smart radiology referral platform that we hope will save lives by ensuring that patients get the best test first."*

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CEO, xWave Technologies



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