# Ireland Where Digital Health Thrives



**An Ibec Campaign** 







## The future of medicine

NUI Galway Professor of Medical Device Technology and Consultant Physician at University Hospital Galway, Professor Derek O'Keeffe talks about how digital health technology is going to be a major part of medicine in the years to come.



"With medical problems, there can be digital solutions," says Professor Derek O'Keeffe, who holds a unique position in medicine, as he is both an engineer and a physician. "I'm what is referred to as a 'Physicianeer' which I think is a good mix for innovation.

"Combining clinical skills with digital and engineering skills is a good way forward for the industry. It creates patient-focused solutions by applying problem-solving competencies within healthcare."

One of these solutions is the 'JediGlove' – a new piece of technology for the visually impaired which sends micro-vibrations through the users' fingers and thumb proportional to an object's distance. This helps them sense obstacles in their path. This was developed by researchers at NUI Galway's Health Innovation via Engineering (HIVE) Lab, led by Derek.

"We nicknamed the device the JediGlove because it lets someone who is visually impaired 'feel the force' of objects in their environment. I realised there weren't many solutions for blind people, and they could be helped with digital technology. This is a great example of a patient-focused approach."

Managing health in a crisis

It's not just everyday clinical problems that digital tools can help with. It can also be used to manage diseases, such as the global Covid-19 pandemic.

Professor O'Keeffe was part of a global task force which examined the role of mobile health (mHealth) technologies during the coronavirus pandemic.

Professor O'Keeffe says, "Before Covid-19, clinics had been doing things the same way for decades. I wondered why we were bringing people from an hour away into a waiting room to wait for another hour just to see a doctor for 10 minutes. It didn't make any sense. I did a TED talk on 'Digital Doctors' in 2019, so it was an emerging idea even before the pandemic. So, when Covid-19 happened, I was called for my input on how to set-up remote consultations.

"When I came back from giving an invited key opinion leaders digital health lecture at the WHO in February 2020, my hospital immediately asked me to help create virtual appointments for our physical outpatients. Virtual doesn't have to be futuristic 3D holograms, it can simply be a phone call or audiovisual software. In our diabetes clinic, we didn't have to cancel one outpatient appointment because we embraced technology early."

Professor O'Keeffe says this proves that digital health technology is ready to be a major tool in helping manage Covid-19. He says virtual care is able to reduce the spread, while keeping patients happy and healthy.

"If we were to suddenly stop all the outpatient appointments," says Professor O'Keeffe, "our patients with chronic diseases would likely decompensate and have to go through the emergency department for clinical review and then they would have a greater risk of catching Covid-19.

"Many clinics who believed they didn't have digital tools to do this actually did – we all have phones with Zoom, Skype, and so many more solutions with many meeting the criteria we need for data protection. Just choose the best one for now as there is no need to overcomplicate it."

Professor O'Keeffe says virtual care was something Ireland had already been creating, but it wasn't until something shook up the industry that it was implemented. He says his mHealth report highlighted these shortcomings of healthcare systems and governmental policies. It also proves that it is possible to implement remote patient-to-physician monitoring solutions.

"I think Ireland is extremely well placed to be at the forefront of this new digital health age. Nine of the world's top 10 medical technology companies are in Ireland, we have an amazing graduate workforce, and industry expertise. Furthermore we are launching Europes first dual training medical-engineer (Physicianeer Program) in Ireland in 2021"

Ireland can be world leaders in this industry and the innovations that have already come from this country are a testament to that."

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