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For 25 years I played key roles in forging the clinical and academic links with the UCL Centre for Health Informatics and Multiprofessional Education (CHIME) and Whittington Health. We developed, evaluated and clinically tested, educational, clinical, and technical components culminating in the creation of a standards and cloud based clinical information system. This has been in clinical practice for over 10 years with 34 clinical delivery sites in 5 Clinical Care Groups (population of 1.6million) across North Central London and involving 3 Hospitals, 3 pharmacies, 4 out-reach from the Hospital and 25 GP Practices . Our digital innovation now includes:

- Helicon®Heart – a cloud based clinical information system based on a powerful, scalable electronic health record server (modelled on the ISO 13606 standard) and hosted in N3, with a strong security model protecting data
- Modules for diagnostic workup, risk assessment and selection of therapy, in atrial fibrillation, heart failure and oral anticoagulants (warfarin and DOAC) and a CE Marked module for warfarin dosimetry
- HeliconStrokePrevent® A socio-technical approach to the prevention of stroke
- Helicon®eLearning, a UCL accredited eLearning for health care professionals covering stroke prevention, atrial fibrillation and anticoagulation
- MyHelicon® is an app for patients allowing them to track their own key health parameters, support self-care and to share information with their clinicians, with a link to Helicon®eLearning and support

I helped found HeliconHealth™, a UCL spin-out company partnering with the Whittington

The NHS and many healthcare systems, are facing fundamental challenges:

- Long term health conditions are increasing and responsible for over 70% of the health budget. They threaten the sustainability of health services globally. They are associated with growing rates of preventable complications and premature deaths, with soaring costs.
- People with a long term condition **spend 99%** of the time managing their condition themselves; **only 2 to 3 hours per year with a health care professional.**
- Many people wish to be more informed and involved with their own care. This offers opportunities for better health through increased prevention and supported self-care.
- Technology is transforming our ability to predict, diagnose and treat disease, leading to the opportunity to break out of the artificial boundaries between hospitals and primary care, between health and social care, between generalists and specialists.
- Most health care systems, or “sickness services”, have failed miserably to prevent disease. There is now an imperative to make better use of technologies to involve the person and their family in their own health. The increased confidence and competence, derived from education and activation, enables them to take more responsibility for their own care resulting in better health care at a lower cost.

To facilitate and enhance the critical role that patients and their families play in their own health and care we have developed:

- E-Learning educational versions for each clinical condition – the Health Care Professionals (HCP) version is designed at CPD level and is accredited by UCL. The patients guided the development of their own version using language understandable to them; it supports their needs to enhance their confidence and competence
- HeliconStrokePrevent™, an app and digital platform in development, for people at high risk of stroke which will help activate them to manage their own blood pressure, anticoagulant control, activity and lifestyle, improve their health understanding, and to collaborate as partners with their GPs and other healthcare professionals.

Our innovations which enhances patient engagement, will change the relationship between the patient and the HCP to more of a partnership model; although disruptive, a healthier more sustainable relationship will ensue. It will also change the character of the clinical care pathways into a more patient focused pathway where the requirements and needs of the patient are much more clearly defined.

Innovation is by its nature disruptive, the benefits are not always apparent to others, and therefore challenging. We are overcoming:

- The process-orientated NHS and Social Care and the pervading financial difficulties, which stifle new ways of delivering a better service.
- Clinicians are wary of any innovation involving technology because of the aftermath of the UK Connecting-for-Health project and the unease about the security and secondary use of data.
- The over-emphasis on big-data, challenges true clinical and personalised medicine. It threatens to jeopardise the full benefits of the rich longitudinal clinical data which will enable us to explore and integrate the rapidly developing genomic and proteomic data.
- The complexity involved in an innovation crossing one or more of the boundaries of the health care system (eg Primary and Secondary Care, and Public Health) or a professional boundary (eg Medical and Pharmacy, Psychology, Nursing or Pharmacy). These add considerable difficulties in terms of acceptability.