A doctor-founded startup is identifying liver disease earlier using NHS data

The data exists, a simple system unlocks its power: meet Predictive Health Intelligence, who in partnership with the NHS is using data to identify those at risk of liver disease early.

As the NHS struggles to meet demand, with patients waiting for care and A&E waiting times skyrocketing the psyche of the nation should be thinking not only of how we can fix the current crisis but just as importantly prevent the next wave of advanced disease and late diagnosis

We're also in an era of massive advancements in health technology, with, for example, artificial intelligence innovations that would've seemed impossible just a few years ago. _Much Venture Capital funding has been spent on these innovations,_ which promise to solve our problems but these are still far from impacting the healthcare system or patients.

As a physician, my frustration has always been that we see patients too late when the options available to me are limited. I work as a gastroenterologist, and one of the things I see far too often is patients coming in who have late-stage liver disease. It's not a traditionally glamorous disease area, we're not talking brains or hearts here and there isn't the same amount of funding, awareness, or political pressure to address liver disease. But _liver disease is one of the leading causes of death for those of working age_, it costs the NHS over £6B per year, and devastates families throughout the country. What's most frustrating is that things don't need to be this way, liver disease is very often preventable and treatable if it's found in time.

The struggle I see is that liver disease is often silent, with the first symptoms only appearing once it has got to the stage of severe scarring (cirrhosis). At this stage, although treatments have advanced, we are far more limited in how we can help. However, when caught early, we can improve the lives of patients through treatment and lifestyle changes, in some cases reversing the disease altogether. There are initiatives within the liver community to address this, but as yet proven, cost effective ways of improving diagnostics are still not widely available.

The "penny drop" moment for me, was seeing how many blood tests were done in my local area, Somerset, every month. And of these, how many were slightly abnormal but not followed up. It got me and the wider team thinking; the data are already there, and if we could simply (and cheaply) analyse the large number of clinical results available going back over years or even decades, we could identify the individuals whose subtle blood test trends indicated they're heading down a bad path. I explored the idea with friends and colleagues and eventually, with funding from the NIHR, started a project to develop the analytical tools and further test these ideas. The beauty of this project, in a cash-strapped health system, is that this data already exists. There are no new diagnostics or expensive equipment to purchase, and patients don't even need to come in for more tests. If we could simply look at existing data in a new way, we could see who is most at risk of liver disease, potentially years before any symptoms appear.

The project is still in full flight and we're identifying new cohorts of people, who never knew they had liver disease. The response from fellow health care professionals and patients alike has been overwhelmingly positive and we're preparing to scale the technology to benefit more of the public.

There are many pieces to the puzzle of chronic disease management across the NHS, but if we can leverage existing test results to ease the burden then we absolutely should. If programmes like our hepatoSIGHT for liver disease can improve efficiency even 1%, the benefit will be huge. Patients get treated early, clinical resources are utilized more appropriately, and the burden on the NHS and society reduces exponentially.

We need to move to a place of proactive care, where prevention of severe disease is the norm. We are uniquely placed in the UK, with our NHS, to use the wealth of data provided by patients, for their benefit, rather than it just sitting in an IT system.

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