

New Technologies and Innovations offer the potential for significant benefits for Patients living with Renal Disease

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Introduction

I have lived with Kidney disease for over 25 years, including hospital dialysis, transplant, cancer, further kidney failure and now Nocturnal Home Haemodialysis. Kidney failure is not a life choice; it is a reality imposed on us that we and our loved ones

must deal with as best we can. Like many of you reading this article, I think our NHS is brilliant yet, there is much more that can be done to help all of us live more independent, productive and fulfilling lives.

I work for an Organisation called Devices for Dignity (D4D) hosted by Sheffield Teaching Hospitals NHS Foundation Trust. D4D is a Healthcare Technology Co-operative funded by the National Institute for Health Research. Its mission is to drive forward new technologies and innovations which improve the lives of patients with long term conditions, including kidney disease

In 2014 D4D together with the Department of Health launched a really exciting competition with funding of £3.6m inviting universities, clinicians and small business to apply for grants to develop technology based solutions to solve unmet renal patient needs to help people like you and I live independent fulfilling lives with dignity.

Here is a flavour of the exciting new innovations that are being worked on by some of the competition winners.

Early detection of signs of Kidney Failure

Early detection of my kidney condition (I was 25 years old at the time) meant I could delay my kidney failure by 10 years through medical interventions and changes in lifestyle. I was lucky because my condition was detected early on. Wouldn't it be great if more patients could benefit from earlier detection of future kidney failure?

It is therefore great to see that two teams of the competition winners are working on new ideas and methods to detect the early signs of kidney disease via new types of blood tests and testing of urine. Earlier detection will give clinicians and patients more time to manage disease progression and explore transplant options before the onset of kidney failure

Helping to reduce the risk of Transplant failure

If you are lucky enough to have had a Transplant then, like me, you would have been desperate for your transplant to be successful. Sadly, success is not guaranteed and for some patients the transplant fails. Two of the winning teams are developing new techniques to reduce the chance of the body rejecting the kidney before and after transplants take place. One team is looking at very early signs that a transplant may be failing with a new test that can detect problems as early as one day after transplant. Another team is looking at treatment pre-transplant to reduce antibody levels which could potentially increase the chance of a successful transplant. This new antibody filter will work as part of the conventional dialysis circuit reducing the need for additional hospital visits.

Earlier detection of infection for Peritoneal Dialysis patients

I only have experience of haemodialysis but for peritoneal dialysis patients I would imagine the risk of infection is a reality you live with every day. Therefore it is great to see that one of the competition winners is looking at early detection of infection so that infection can be treated early before it becomes a real problem. Their system is compatible with current PD treatments that changes colour when infection is detected so it is easy for patients to detect when they have early signs of infection.

Clinic appointments from your Home

Imagine having a face to face conversation with your hospital Consultant, Pharmacist, Dietician or a Renal Technician (if you have a machine at home) without all the hassle of travel, parking and waiting rooms. For me as a home dialysis patient, enough said!

One competition winner has developed a user friendly telemedicine technology solution. In a nut shell, patients can interact via their desktop computer, laptop, tablet device or even a TV screen with their consultant and other medical support staff. Using cameras on these devices patients can for example, point the camera at their fistula or a machine, so your medical team can see the problem for themselves and of course enter into the same face to face conversations you would conduct in clinic. All of this takes place at a pre-arranged time without the need to leave home!

Access to online information and advice for Renal Patients

As renal disease progresses, patients are faced with some very big decisions about choice of treatment – probably one of the biggest decisions of our lives. There is no shortage of information available. One team looking at this issue from a different angle is looking into ways to help patients cope emotionally.

As well as giving access to key information, it provides helpful ideas and advice to improve self-management behaviours and advice on coping with renal disease, both practically and psychologically. This multi-faceted approach is designed to empower patients to take control of their disease to delay disease progression. The programme also supports patients to engage in shared decision-making with their renal team and their family around dialysis, with the aim to support patients when it comes to making the correct choice of treatment.

Many of the people reading this article will be users of Renal Patient View. Another of the completion winners is looking at providing information for patients in real time i.e. updated as and when new information is available. Secondly to give patients the opportunity to interact with the Patient view system initially to point out changes which may be needed in personal information for example medication details. Later the hope is to provide patients with the ability to interact on a wider range of topics.

It doesn't stop here; many of these ideas will become a reality in the very near future

All the teams I have mentioned are coming to the end of their initial work on proof of concept. In December the most promising innovations will receive further funding to help the companies' complete clinical trials and run pilot schemes prior to launching across the NHS.

D4D's mission to find new technologies and innovations to meet unmet needs is an ongoing journey. If you have any suggestions about the unmet needs for people living with kidney diseases or would like to learn more about the work of D4D visit our website DevicesforDignity.org.uk

The unabridged version of this article may be found on the NKF website at www.kidney.org.uk – search for 'David Coyle'

