



Using technology to transform cancer outcomes

Dr Tim Williams, 31st August 2018

A guest blog from **Dr Tim Williams**, CEO of **My Clinical Outcomes**. My Clinical Outcomes received Phase 2 funding from the Cancer Innovation Challenge in the New approaches to record and integrate cancer PROMs and PREMs funding competition.

A screenshot of a web-based questionnaire titled 'Pre-Chemotherapy Questionnaire' under the heading 'BLOOD CANCER ASSESSMENT'. The interface includes a logo for 'MY CLINICAL OUTCOMES' at the top left. The main heading is 'BLOOD CANCER ASSESSMENT' followed by an introductory paragraph: 'We are interested in some things about your health. Please answer all of the questions yourself by selecting the answer that best applies to you. There are no 'wrong' or 'right' answers.' Below this is a section titled 'Pre-Chemotherapy Questionnaire' with a sub-heading: 'These questions relate to the period of time since your last attendance for chemotherapy.' The first question is 'BOWELS Have your bowels been normal since your last chemotherapy?' with three radio button options: 'Yes', 'Nearly', and 'No'. The second question is 'If you have been constipated, how many days longer than your normal did this last?' with five radio button options: '0 days', '1 day', '2 days', '3 days', and '4 days or more'.

Figure on left - MCO patient interface in use at NHS Ayrshire & Arran

We started 'My Clinical Outcomes (MCO)' in 2011 because, as doctors, we were frustrated by the lack of real-world data to help patients and clinicians make the best treatment decisions.

We realised that emerging digital technology, like smartphones and the internet, could help make care more patient-centred by remotely monitoring patients in between appointments.

Patient Reported Outcome Measures (PROMs) are clinically-validated, condition-specific assessments that quantify the impact of a disease on

a patient's life at a point in time. MCO is an easy-to-use website that allows patients with any condition to measure and track PROMs tailored to them and share the results with their doctors.

While hospitals are generally very good at measuring the processes of care, such as waiting times or length of stay, and the rate of complications like infections, they are less good at recording the actual results of treatment from the perspective of patients themselves.

Allowing patients to track their own condition using PROMs helps them to understand their own progress while clinicians can then use this data to make better ongoing decisions with them.

Using MCO, senior clinicians and managers are then able to analyse aggregated data about overall results from the perspective of many patients, see variation in quality and take action to make overall care pathways more effective and efficient.

A big challenge is making new technology fit around the way hospitals work, and useful and useable for patients and busy clinicians alike. As a result, MCO is built to be super-flexible, and our team have become experts at making adoption easy so data is available fast.

Today, MCO is in use at over 60 UK hospitals, and has collected data in over 30,000 patients registered to over a 1,000 clinicians.

Now, researchers in several disease areas, including cancer, have started to publish specific evidence of the benefits of these approaches.

In June 2017, Basch et al. presented evidence that patients with advanced cancer whose care was supported by the remote, electronic collection of PROMs survived an average of five months longer than other patients. This significant result was better than the vast majority of recently approved, and hugely expensive, chemotherapy drugs - but the reasons aren't magic or mysterious.

Simply, the remotely collected data meant specialist nurses could take action to proactively help individual patients. So, for example, a patient reporting pain or nausea could get more symptom relief. Or the symptoms of potentially severe illness, such a chest infection, could be spotted and treatment started earlier.

These small interventions added up to ensure that more of these patients received their full course of chemotherapy which meant that more lived longer as a result.

Shortly after this research was published, the “Cancer Innovation Challenge” was launched in Scotland looking for New Approaches to Record and Integrate Cancer PROMs and PREMs. MCO was one of five companies to win the initial feasibility study and one of two chosen to go on to implement the technology from February 2018.

We have been working closely with the Clinical Director of Oncology at NHS Ayrshire and Arran, Dr Peter Maclean, to implement MCO initially around the care of patients undergoing chemotherapy for blood cancer at University Hospital Crosshouse. Patients already report feeling more closely looked after in between appointments and have more time to more fully report their symptoms in detail. Clinicians are finding the data helpful in revealing more detail about potential toxicity, and is allowing them to make clinical decisions at the right time, often during more time-efficient consultations, and is making comparisons between patients easier.

As well as expanding at NHS Ayrshire and Arran to include patients with breast cancer, and starting to get used at University Hospital Ayr, we have started to work with The Beatson West of Scotland Cancer Centre, and hope more centres in Scotland will come online very soon.

Elsewhere in the UK, MCO is working with Macmillan Cancer Support and the Royal College of Radiologists to pilot the use of the system to detect potential late-toxicity effects in patients undergoing pelvic radiotherapy at three NHS cancer centres. These symptoms often go undiagnosed or untreated for many months and cause undue anxiety and distress which is why it’s so important to detect them and ensure patients get the treatment they need fast.

A natural evolution will be to combine the aims of these projects; to collect symptom data to inform initial treatment and then track patients to ensure any late-toxicity is captured. It is then possible to start to add in a systematic assessment of Quality of Life to ensure all patients are living as well as possible between and beyond treatment.

Speaking about the Cancer Innovation Challenge, Dr Catherine Calderwood, Scotland's Chief Medical Officer, has said: "Getting accurate information from patients about their symptoms at the time they are experiencing them is ...particularly pertinent for people with cancer. How they feel really matters. Patient-reported outcomes (PROs)... have the potential to enhance the quality of life for patients while they are going through treatment. Ultimately it is about improving services, treatments and outcomes for people with cancer."

And Dr Jane Maher, Chief Medical Officer at Macmillan Cancer Support, has said: "Routine collection of patient-reported outcomes improves survival of patients with advanced cancer - so let's get on with it!"

Early results from the Cancer Innovation Challenge are showing real promise; the next challenge is to scale the adoption of new technologies like this and embed them in routine cancer care, so helping to transform services across Scotland and the UK, and outcomes for all patients with it.

If you are interested in finding out how digital outcomes measurement can help your organisation we love to hear from you. Please contact us on Twitter [@MyClinOutcomes](https://twitter.com/MyClinOutcomes), [@t1mwilliams](https://twitter.com/t1mwilliams) or email us on info@myclinicaloutcomes.com and we'll be in touch!

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