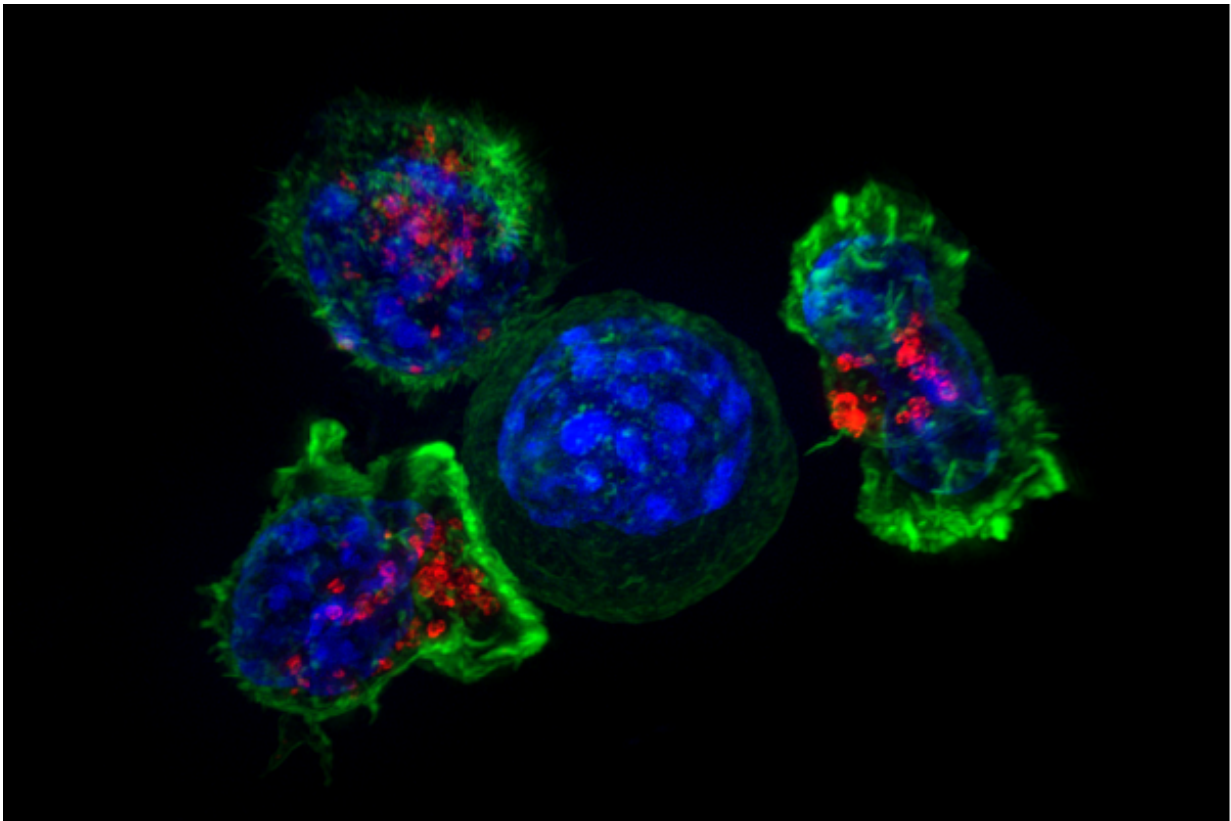# New web calculator to more accurately predict bowel cancer survival

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Killer T cells surround a cancer cell. Credit: NIH

"How long do I have, doctor?" For many cancer patients, following the initial shock of their diagnosis, thoughts quickly turn to estimating how much precious time they have left with family and friends or whether

certain treatments could prolong their life.

While current methods of estimating mortality can be crude, patients with bowel cancer could soon more accurately predict their chances of survival, thanks to a new web calculator 'QCancer Colorectal Survival' developed by academics at the University of Nottingham and medical software company ClinRisk Ltd.

The new tool, which can be accessed by doctors and patients alike, is intended to help people make more informed decisions around treatment and manage expectations following diagnosis.

Research to test the accuracy of the new calculator, published in the *British Medical Journal* (BMJ), has shown that the tool can reliably predict both absolute survival rates for men and women with colorectal cancer.

The calculator also allows patients to update their mortality risk based on how long they have survived following a diagnosis of cancer.

The tool was developed by Professors Julia Hippisley-Cox and Carol Coupland in the University's School of Medicine using the QResearch database, which gathers patient data from approximately 1500 general practices across England through the Egton Medical Information Systems (EMIS) clinical computer system.

Professor Hippisley-Cox said: "Current methods of estimating survival tend to be unreliable and sometimes patients can be given a fairly misleading and unnecessarily gloomy prognosis based only on the grade and stage of their cancer, only to find that in reality they live much longer than these crude predictions when other information is taken into account.

"The good news is that this new calculator which doctors and patients can access will offer a far more realistic estimate. We understand that not everyone will want to do this, of course, but some patients are very keen on this approach so it's an individual choice."

Current methods of predicting survival are based on simple averages based only on age or the grade and stage of the cancer in the wider population.

The new tool looks at a range of additional risk factors including the patient's, smoking history, body mass index, family history, other illnesses and treatments such as aspirin or statins as well as other information including whether they have had surgery or treatments such as chemotherapy to deliver a far more personalised prognosis.

The team used information from more than 44,000 patients from 947 practices to develop separate equations for men and women aged between 15 and 99 years old when diagnosed with bowel cancer.

They then tested the equations by using them retrospectively to predict the outcome at one year, five years and 10 years after diagnosis for 15,214 bowel cancer patients from 305 different GP practices and 437,821 colorectal cancer patients from the national cancer registry.

The results indicated that the team has devised strong models for the prediction of cancer survival outcomes. They were also able to provide conditional survival estimates which show how mortality risks change over time, which are particularly important among patients where the initial prognosis is poor due to late stage disease.

For example, a 38-year-old woman with stage 4 advanced bowel cancer might decide to estimate her survival with or without surgery and chemotherapy to help assess the potential value of the treatment.

Using the web calculator, she could see that her chance of surviving for five-years without any [treatment](#) would be just 6 per cent; with surgery that would increase to 23 per cent and with both treatments it would be 45 per cent.

This compares with the published five-year survival of 66 per cent based solely on her age or the eight per cent chance based solely on her cancer stage.

Assuming she has both treatments and survives for a year following her diagnosis, her five-year conditional survival would increase to 57 per cent.

Provided by University of Nottingham