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Artificial intelligence for early cancer diagnosis

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The research into the application of artificial intelligence aids with the early diagnosis of cancer



The British government has announced ambitious plans to prevent an estimated 22,000 cancer deaths by 2033, through the use of artificial intelligence to predict those individuals at greater risk of developing the disease.

The research into the application of artificial intelligence aids with the early diagnosis of cancer. The platforms being developed under funding from the British government are targeted at prostate, lung and bowel cancer.

The specific aim of the platform is to detect individuals at a greater risk from these types of cancers earlier by assessing the millions of data points held by the National Health Service (NHS), drawing upon information contained in patient records, such as genetic information, and lifestyle factors.

With lifestyle factors, this could include social media profiles. This will help to determine which patients to screen and when to refer people for medical assessments.

The collection and analysis of information has been made much easier through the adoption of electronic health records by the NHS.

To make use of the information, machine learning is required. Overtime the accuracy of predictions should increase as the predictions are reviewed alongside patient survival statistics. The intention is to assist medical professionals, rather than to replace them.

The artificial intelligence commitment, which was announced by the Prime Minister Teresa May, is also set to create hundreds of jobs, especially around technology clusters located in Edinburgh, Leeds and Oxford.

These technologies also pave the way for personalized medicines. This is a shift from anti-cancer drugs aimed at a specific type of cancer (or cancers) intended for a general population pool, and towards medicines tailored towards an individual's own genetic profile.

Artificial intelligence is also being used in other ways in healthcare, such as through image analysis. Many tumors are transparent, which makes detecting them more difficult; moreover, there are over three hundred different types of tumors.

An example of an image detection system in development is a new microscope from Google (which has been profiled on Digital Journal "Google microscope uses AI and AR for cancer detection").

Artificial intelligence is also being applied to cardiovascular issues. Here measurements are assessed in order to predict the likelihood or otherwise of heart conditions.

AI scanning systems can provide recommendations based on an assessment of cardiovascular event risk, with the inquiries drawn from databases that expand over time.