



Cancer Patients may get Faster and more Personalized Treatment as result of Collaboration between GE Healthcare, University of Cambridge and Addenbrooke's hospital

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- *Teams plan to cooperate on the development of a machine learning-based solution, aiming to improve care for cancer patients by giving cancer care teams access to complex data and information*
- *The potentially transformative solution will initially focus on ovarian cancer and will then expand for use in breast and kidney cancer.*

Cambridge/Chalfont St Giles, UK; November 29 2021 – GE Healthcare, the University of Cambridge and Cambridge University Hospitals have agreed to collaborate on developing an application aiming to improve cancer care, with Cambridge providing clinical expertise and data to support GE Healthcare's development and evaluation of an AI-enhanced application that integrates cancer patient data from multiple sources into a single interface.

Building on research supported by The Mark Foundation for Cancer Research and Cancer Research UK, the collaboration aims to address the problems of fragmented or siloed data and disconnected patient information, which is challenging for clinicians to manage effectively and can prevent cancer patients receiving optimal treatment.

"Thanks to ever-improving technologies, we now generate increasing amounts of complex data for each patient with cancer. These include multiple imaging scans, digital pathology, genomic data, advanced blood tests and treatment information. Bringing all this data together to make precise and informed decisions for patients can be hard. We often do this inefficiently and miss important connections between the data," said Professor Richard Gilbertson, Director of the Cancer Research UK Cambridge Centre, and Head of the Department of Oncology at the University of Cambridge.

This new application would be designed using advanced software engineering and machine learning methods to integrate a variety of patient data including clinical, imaging and genomic data - from diagnosis through every stage of treatment - into one single location. The aim is to offer all medical teams involved in a patient's cancer care - medical oncologists, clinical oncologists, surgeons, radiologists, pathologists, clinical nurse specialists and more - simultaneous access to the necessary data and information to allow the medical team to plan the best, most personalized treatment for each of their patients.

The application is expected to be evaluated for ovarian cancer initially in Cambridge and the goal is to evaluate it across the UK, and beyond. Ovarian cancer is often difficult to treat as most patients present with advanced disease. Although initially 70-80% of patients will respond well to chemotherapy, ultimately most develop chemotherapy resistance leading to treatment failure.^[1] The application may help clinicians have better visibility on how the patient respond to treatment, thus helping them more effectively identify when treatment may require adjustment. If the application is successfully developed, our vision is for it to be expanded for use in breast and kidney cancer patients.

"Healthcare professionals can struggle to easily find and interpret the many different types of patient data information they need to make the best clinical decisions," said Dr Ben Newton, GM Oncology at GE Healthcare. "Bringing these multiple data streams into a single interface could enable clinicians to make fast, informed and highly personalised treatment decisions throughout a patient's cancer care pathway."

Two Addenbrooke's cancer clinicians aiming to evaluate the application to help patients are consultant oncologist Prof. James Brenton, professor of Ovarian Cancer Medicine and a senior group leader at the Cancer Research UK Cambridge Institute; and consultant radiologist Prof. Evis Sala, professor of Oncological Imaging, University of Cambridge.

"Aggregating and analysing the substantial amounts of data available would help address an unmet need. Ovarian cancer is an important and complex disease with poor outcomes, and we believe this application would help us deal with its complexity. Eventually, we hope to be able to better understand the disease and therefore improve treatment and outcomes for patients," says Prof. Brenton, who co-leads the Mark Foundation Institute for Integrated Cancer Medicine (MFICM) at the University of Cambridge.

"If we can aggregate and integrate relevant data along the care pathway, and visualize the output, it may ultimately lead to clinicians making better-informed decisions and better care." adds Prof. Sala who also co-leads the MFICM at the University of Cambridge.

"The team aims to transform the delivery of cancer patient care by integrating multiple data streams together into a single platform that can be accessed simultaneously by clinicians, patients and multi-disciplinary teams (MDTs) from tertiary and regional hospitals."

The development work will be underpinned by GE Healthcare's Edison platform to integrate data from diverse sources, such as electronic health records (EHR) and radiology information systems (RIS), imaging and other medical device data.

About GE Healthcare:

GE Healthcare is the \$17* billion healthcare business of GE (NYSE: GE). As a leading global medical technology, pharmaceutical diagnostics and digital solutions innovator, GE Healthcare enables clinicians to make faster, more informed decisions through intelligent devices, data analytics, applications and services, supported by its Edison intelligence platform. With over 100 years of healthcare industry experience and around 47,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping drive productivity and improve outcomes for patients, providers, health systems and researchers around the world.

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*Excludes Biopharma business divested in March 2020.

About The University of Cambridge

The University of Cambridge is one of the world's top ten leading universities, with a rich history of radical thinking dating back to 1209. Its mission is to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

The University comprises 31 autonomous Colleges and 150 departments, faculties and institutions. Its 24,450 student body includes more than 9,000 international students from 147 countries. In 2020, 70.6% of its new undergraduate students were from state schools and 21.6% from economically disadvantaged areas.

Cambridge research spans almost every discipline, from science, technology, engineering and medicine through to the arts, humanities and social sciences, with multi-disciplinary teams working to address major global challenges. Its researchers provide academic leadership, develop strategic partnerships and collaborate with colleagues worldwide.

The University sits at the heart of the 'Cambridge cluster', in which more than 5,300 knowledge-intensive firms employ more than 67,000 people and generate £18 billion in turnover. Cambridge has the highest number of patent applications per 100,000 residents in the UK.

www.cam.ac.uk

About Cambridge University Hospitals:

Cambridge University Hospitals NHS Foundation Trust (CUH) is one of the largest and best known trusts in the country, delivering high-quality patient care through Addenbrooke's and the Rosie Hospitals. CUH is a leading national centre for specialist treatment for rare or complex conditions and a university teaching hospital with a worldwide reputation.

CUH is a key partner in Cambridge University Health Partners (CUHP), one of only six academic health science centres in the UK, and is at the heart of the development of the Cambridge Biomedical Campus (CBC), which brings together on one site world-class biomedical research, patient care and education. As part of the Campus development, Papworth Hospital has created a bespoke, purpose-built hospital, and AstraZeneca is building a new global R&D centre and corporate headquarters. The Campus is one of the Government's National Institute for Health Research (NIHR) comprehensive biomedical research centres.

About The Mark Foundation Institute for Integrated Cancer Medicine

The Mark Foundation Institute for Integrated Cancer Medicine (MFICM) at the University of Cambridge aims to revolutionise cancer care by using cutting edge analytics to maximise the use of diverse, high-volume data sets. The virtual institute exploits recent advances in machine learning and big data technology to capture, integrate, and derive insight into clinical, genomic and imaging data collated from hundreds of cancer patients in real time. Laboratory and clinic-based researchers and data experts are working together to develop sophisticated computational integration of these diverse data types into a single platform which can inform and predict the best treatment decisions for each individual patient.

MFICM is jointly funded by The Mark Foundation for Cancer Research and Cancer Research UK Cambridge Centre. The Mark Foundation for Cancer Research is dedicated to accelerating cures for cancer by integrating discoveries in biology with innovative technology. The Foundation pursues its mission by funding a global portfolio of ground-breaking research carried out by individual investigators, multi-investigator teams, and inter-institutional collaborations.

Visit our websites to find out more: www.integratedcancermedicine.org and www.crukcambridgecentre.org.uk

About The Mark Foundation for Cancer Research

The Mark Foundation for Cancer Research actively partners with scientists to accelerate research that will transform the prevention, diagnosis, and treatment of cancer. The Mark Foundation fulfills its mission by supporting groundbreaking science carried out by individual investigators, multi-disciplinary teams, and inter-institutional collaborations in the United States, Europe, and across the globe. Recognizing the obstacles that prevent scientific advances from improving patient outcomes, The Mark Foundation maintains a nimble, high-impact approach to funding cancer research that bridges the gap between bench and bedside through grants and early-stage venture investments.

Since 2017, The Mark Foundation has awarded more than \$125 million in grants to enable innovative basic, translational, and clinical cancer research, including drug discovery. The Mark Foundation also has a robust and growing portfolio of investments in oncology companies developing novel therapeutics and diagnostics. Through its research and venture arms, The Mark Foundation supports projects throughout their life cycle to ensure their highest chance of success in impacting the lives of patients with breakthroughs in cancer care.

To learn more please visit www.TheMarkFoundation.org.

About Cancer Research UK

- Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research.
- Cancer Research UK's pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives.
- Cancer Research UK has been at the heart of the progress that has already seen survival in the UK double in the last 40 years.
- Today, 2 in 4 people survive their cancer for at least 10 years. Cancer Research UK's ambition is to accelerate progress so that by 2034, 3 in 4 people will survive their cancer for at least 10 years.
- Cancer Research UK supports research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses.

- Together with its partners and supporters, Cancer Research UK's vision is to bring forward the day when all cancers are cured.

For further information about Cancer Research UK's work or to find out how to support the charity, please call 0300 123 1022 or visit www.cancerresearchuk.org. Follow us on [Twitter](#) and [Facebook](#).

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[1] <https://www.integratedcancermedicine.org/research/disease-areas/ovarian-cancer/>