GE Healthcare to collaborate with University of Oxford, NCIMI on AI algorithms to help predict COVID-19 severity, complications and long-term impact

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Chalfont St Giles, UK – June 15 2020 GE Healthcare is working with the University of Oxford-led National Consortium of Intelligent Medical Imaging (NCIMI) in the UK to develop and test algorithms to aid in the diagnosis and management of COVID-19 pneumonia. The program will focus on developing, enhancing and testing potential algorithms to help diagnose COVID-19 pneumonia, predict which patients will develop severe respiratory distress - a key cause of mortality in patients who develop COVID-19 pneumonia - and which patients might develop longer term lung function problems, even when they recover from respiratory distress.

At present, clinicians cannot easily predict which patients who test positive for COVID-19 will deteriorate and require hospital admission for oxygen and possible ventilation. Nor is it clear which patients will suffer long-term consequences from the lung damage from COVID-19 pneumonia.[1] The teams aim to develop algorithms incorporating data from thousands of patients medical imaging, laboratory and clinical observations to provide both a quicker diagnosis and a prediction of how a patient may progress and recover.

Currently, some patients admitted to hospital do not see a worsening of their symptoms, while others who appear stable can deteriorate rapidly. [2]Identification of those patients at highest risk of deterioration and long-term lung function problems may help physicians and caregivers to accelerate intensive support. It may also allow those with lower risk to be monitored in a suitably safe environment, potentially including the patient's home. GE Healthcare and NCIMI aim to develop tools to help in the management of these COVID-19 patients from triage to acute monitoring, interventions, to discharge and those requiring follow-up after recovery.

"It would be extremely valuable to predict at a relatively early stage in the disease which patients will do well, which are at risk of imminent deterioration and should be admitted to ICU as they will need more intensive support, and which are at higher risk of delayed deterioration and need to be actively monitored." says Professor Fergus Gleeson, Consultant Radiologist, Professor of Radiology at the University of Oxford, and the 2020 president of the European Society of Thoracic Imaging. "These distinctions would allow hospital resources to be targeted to those that will need them whilst in hospital and following discharge."

"As health systems manage COVID-19 cases, clinicians can benefit from new technologies to help triage and determine which patients are likely to develop respiratory distress and longer-term complications,'' said Kieran Murphy, President and CEO of GE Healthcare. "If we can ensure patients are quickly placed in the right care setting, this may help to improve outcomes."

The development of robust algorithms and models requires large data sets comprising thousands of patients. The Oxford and NCIMI teams will have access to data from NCIMI NHS partner hospitals as well as working with the National COVID-19 Chest Imaging Database (NCCID) led by NHSX in England and the British Society of Thoracic Imaging. GE Healthcare is developing various imaging and vitals-sign algorithms for use in conducting research for better understanding of the COVID-19 disease progression. The team at Oxford will assess and test various approaches to determine if these can be used to help patients who have or have had COVID-19 pneumonia.

The trial - AI-en**h**anced C**o**vid 19 Progno**s**tic Algori**t**hm (**HOST**) is approved by the UK's Health Research Authority.

About NCIMI:

The National Consortium of Intelligent Medical Imaging is a network of NHS hospitals across 15 NHS trusts, clinical leaders, industry experts in the fields of AI and medical imaging, world-leading academic researchers plus patient groups and charities. NCIMI brings together world-leading clinicians, NHS hospitals, industry experts in clinical imaging and artificial intelligence, charities and patient group.

Together, we are transforming how we diagnose and treat diseases and chronic health conditions.

Our goal is to build a pipeline for innovation to allow new medical imaging AI tools to be developed, tested, validated and adopted into the NHS.

About the University of Oxford

Oxford University has been placed number 1 in the Times Higher Education World University Rankings for the fourth year running, and at the heart of this success is our ground-breaking research and innovation. Oxford is world-famous for research excellence and home to some of the most talented people from across the globe. Our work helps the lives of millions, solving real-world problems through a huge network of partnerships and collaborations. The breadth and interdisciplinary nature of our research sparks imaginative and inventive insights and solutions.

About GE Healthcare:

GE Healthcare is the $16.7 billion healthcare business of GE (NYSE: GE). As a leading global medical technology 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 50,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping to drive productivity and improve outcomes for patients, providers, health systems and researchers around the world. *Follow us on* Facebook*, LinkedIn, Twitter and Insights , or visit our website* www.gehealthcare.com *for more information.*

[1] AI-enhanced Covid 19 Prognostic Algorithm (HOST) trial protocol, Professor Fergus Gleeson

[2] As above

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