

MCRC

Driving

Cancer

Team

Science

COVID-19 and Cancer Research

How Manchester researchers are
investigating the effect COVID-19
has on cancer patients

A partnership founded by



Introduction

COVID-19 has posed many challenges to the healthcare sector and wider society, with many research organisations including those in Manchester, needing to rapidly reallocate resources and expertise to tackle the public health crisis.

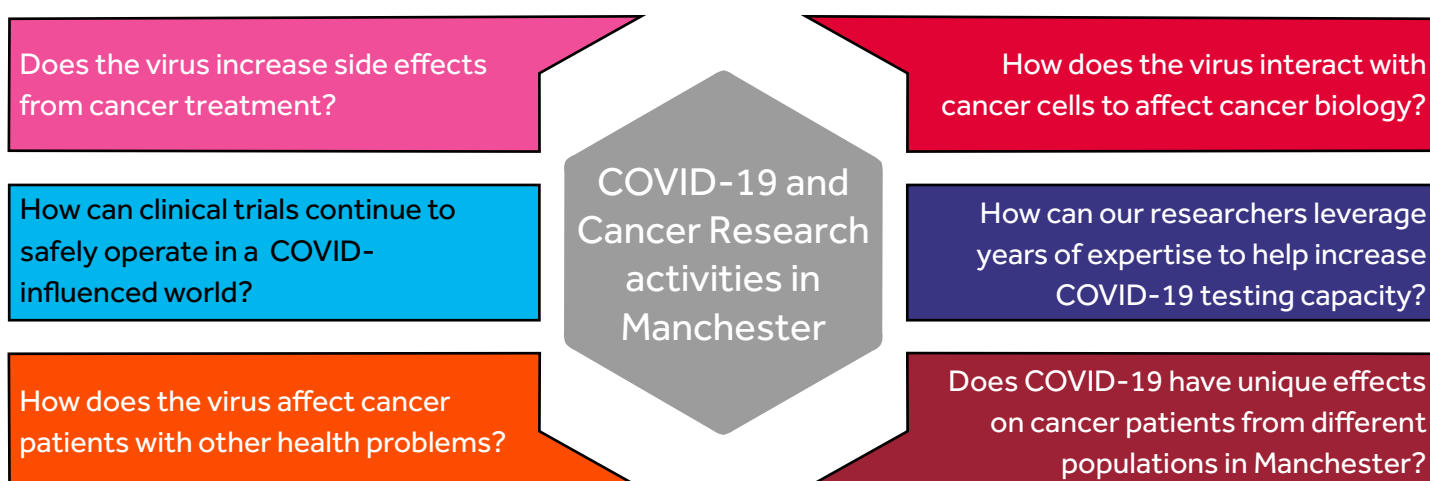
Ever since the UK went into lockdown on the 23rd March, cancer services have faced an unprecedented challenge in navigating how to keep potentially vulnerable patients safe, while maintaining cancer treatment and services. This has led to the disruption to standard operations of treatment, cancer screening, diagnosis and research activities across the country.

Researchers from across Manchester have adapted to these challenges presented by the global pandemic. While both The Christie and Manchester University NHS Foundation Trusts have been involved in the national RECOVERY trial, Manchester's research activities involving COVID-19 and Cancer extends much further.

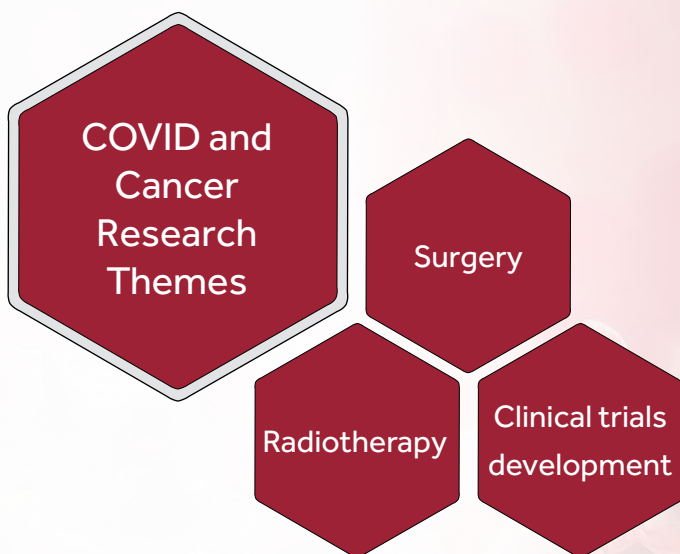
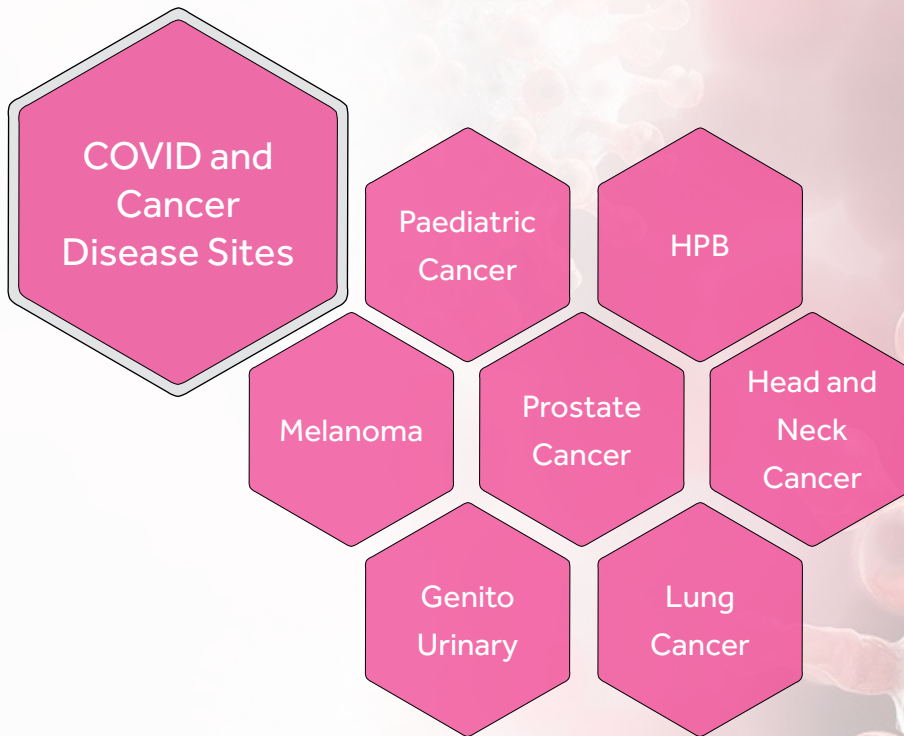
In a clinical environment, many clinician researchers have returned to the frontline of service delivery, treating patients who have tested positive for COVID-19 and worked to maintain cancer services and reactivate clinical trials to offer treatment to those most in need.

While laboratories were among the buildings that closed during late March, researchers who found themselves working from home were able to transition their efforts to creating virtual connections, and non-lab research. Work is ongoing to reopen laboratories across Manchester, adopting shift patterns and social distancing to progress the vital cancer research activities.

Mancunian researchers have focused on several areas of the COVID-19 virus, including how the combination of cancer and COVID-19 affects cellular biology and treatment side effects, as well as formulating key questions to see how Manchester can contribute to the fight against the COVID-19 virus.



Active Research Projects



Active Research Projects

Manchester-based scientists are involved in various active projects covering basic, translational and clinical research that aim to answer key questions of how COVID-19 affects patients with cancer. Those projects listed below are colour coded according to the research questions posed in the introduction.



COVID-RT Lung: A national data collection service

Prof. Corinne Faivre Finn, Dr Kathryn Banfill, Dr Gareth Price, Dr Kate Wicks

COVID-RT Lung is led by researchers at The Christie and has been established to collect data for patients undergoing treatment for lung cancer at treatment centres around the UK. The aim of assessing the impact of the pandemic on radiotherapy delivery, and assessing the clinical evidence of reduced fractionation in radiotherapy treatment.

COSMIC-19: COntinuous Signs Monitoring In COVID-19 patients

Prof. Fiona Thistlethwaite, Dr Anthony Wilson, Zenium LTD, Aptus Clinical

COSMIC-19 is a pilot study led by The Christie and open for recruitment at The Christie and Manchester University NHS Foundation Trust. It will assess whether artificial intelligence can predict clinical deterioration in patients with a suspected or positive COVID-19 diagnosis using continuous vital signs monitoring from wearable sensors together with clinical data. Success in this study will enable reduced contact and reduced risk for healthcare workers, and evaluate the utility of continuous vital signs monitoring in facilitating earlier intervention.



Understanding the needs and experiences of shielded and frail lung cancer patients during the COVID-19 pandemic

Prof. Janelle Yorke, Prof. Corinne Faivre Finn, Prof. Fiona Blackhall, Dr Fabio Gomes, Dr Sally Taylor

To explore the experiences of patients and the impact of the COVID-19 pandemic on daily living. The project will examine the needs of cancer patients at The Christie with lung cancer who are considered frail, and explore the differences in ePROMS data before and after the lockdown restrictions were implemented and relaxed.



RECAP: Remote Monitoring of Cancer Patients presenting with symptoms suggestive of COVID-19

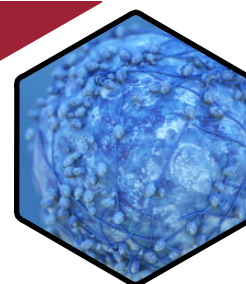
Prof. John Radford

RECAP is a pilot study led by The Christie evaluating the use of wearable biosensors to measure physiological variables in oncology patients suspected of having COVID-19 but well enough to manage at home. The team plans to identify and evaluate whether a clinical 'red flag' can help to indicate clinical deterioration and facilitate rapid assessment and intervention. If successful, RECAP will proceed to a Phase II clinical trial

UK Paediatric Oncology Coronavirus Cancer Monitoring Project

Dr Martin McCabe

All paediatric oncology centres in the UK, including those in Manchester have joined the UK Paediatric Oncology Coronavirus Cancer Monitoring Project registering cases of COVID-19 in children with cancer since the outbreak of the pandemic



PROIMMUNOCOID: Understanding the genetic immunology of healthcare workers with antibodies

Prof. Gareth Evans

PROIMMUNOCOID seeks to identify healthcare workers who have tested positive for antibodies but have had no symptoms and find out what may be protecting them genetically/immunologically from COVID-19 by carrying out genetic analysis of blood samples.

Risk of COVID-19 related hospital admission and death in cancer patients in Greater Manchester (GM): Effect of comorbidity and polypharmacy in a population-based study

Prof. Corinne Faivre Finn, Matt Barker-Hewitt, Prof. Niels Peek

To determine the risks and factors associated with COVID-19 diagnosis, COVID-19 hospital admission and outcomes in cancer patients receiving treatment at The Christie, with hospitalisation and deaths data linked for the first time to longitudinal primary care electronic health records in GM.



Developing antibody and antigen tests for university researchers

Prof. Stephen Taylor

The Taylor lab are using expertise in immunoassay development to potentially develop local antibody and antigen tests for university staff to uncover whether or not they have been exposed and have gained any immunity to the COVID-19 virus.

The Christie Response and Clinical Trials During COVID-19

One of the biggest challenges facing cancer researchers was how to conduct clinical trials during the global pandemic in a safe and productive manner. Patients on these trials are thought to be among the most vulnerable and at risk of developing serious COVID-19 symptoms, requiring a reimagining of how clinical services are planned, developed and delivered.

As a way to maintain the activity of cancer services, in early April, The Christie became the North-West Cancer Hub, designated as a COVID-free space that prioritised resuming treatment, screening and other essential activities. While initial set up was challenging, involving adopting new virtual and digital processes and procedures, in May, clinical trials activities recommenced.

Multiple clinical trials investigating how COVID-19 affects cancer patients are now active or in the preparation stage at The Christie and other NHS trusts across Manchester that build upon the skills, expertise, and leadership of our experimental and early phase clinical trials team.

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Clinical trials involving COVID-19 and cancer research are in active recruitment or in setup/feasibility stages, including:

- RECOVERY - Randomised Evaluation of COVID-19 Therapy
- RECAP - Remote Monitoring of Cancer Patients
- COSMIC-19 - Continuous Signs Monitoring in COVID-19 patients

300

These clinical trials have enrolled over 300 participants

Supporting the National Effort in COVID-19 Testing

Researchers and staff from the Cancer Research UK Manchester Institute and Cancer Research UK Manchester Centre supported the effort to rapidly escalate the national testing capacity by volunteering to work in the Lighthouse laboratories.

The Alderley Park Lighthouse Laboratory was set up by the UK Government in order to meet the national testing capabilities for samples suspected of being positive for COVID-19 and needed scientists with laboratory expertise to help facilitate testing.

Led by Professor Caroline Dive and supported by the CRUK MI leadership team, the Institute has loaned equipment and expertise to the lab in order to best support the national effort needed to combat the COVID-19 pandemic.

30

Researchers and scientists involved

3660

Hours spent testing samples

PCR instruments, and other lab equipment loaned to the labs

COVID and Cancer Research Publications

Information and data analysis have been essential throughout this rapidly evolving public health crisis. Academics from across the world have been sharing best practice and information to help minimise its impact.

The following research publications focus on research by Manchester researchers that shares learnings of how COVID-19 has impacted patients, and clinical recommendations for how treatment is delivered.

- **Prediction models for diagnosis and prognosis in COVID-19**
Sperrin M, Grant SW, Peek N. *BMJ*. 2020 Apr 14;369: m1464 doi:10.1136/bmj.m1464
- **Practice Recommendations for Risk-Adapted Head and Neck Cancer Radiation Therapy During the COVID-19 Pandemic: An ASTRO-ESTRO Consensus Statement.**
Thomson DJ, et al. *Int J Radiat Oncol Biol Phys*. 2020 Jul 15;107(4):618-627. doi: 10.1016/j.ijrobp.2020.04.016
- **Recommendations for head and neck surgical oncology practice in a setting of acute severe resource constraint during the COVID-19 pandemic: an international consensus.**
Mehanna H, ..., Thomson DJ, ..., et al. *Lancet Oncol*. 2020 Jul;21(7):e350-e359. doi: 10.1016/S1470-2045(20)30334-X
- **On the Question of Resource Constraints During the COVID-19 Pandemic**
Thomson DJ, Yom SS., Thinking Globally. *Int J Radiat Oncol Biol Phys*. 2020 May 13. doi: 10.1016/j.ijrobp.2020.04.032
- **Considerations for the treatment of pancreatic cancer during the COVID-19 pandemic: the UK consensus position.**
Jones CM, ..., Valle JW, ..., et al. *Br J Cancer*. 2020 Jul 8:1–5. doi: 10.1038/s41416-020-0980-x.
- **Consensus guidelines for the Management of Melanoma during the COVID-19 Pandemic: Surgery, Systemic Anti-cancer Therapy, Radiotherapy and Follow-up**
Nahm SH, Rembielak A, Peach H, Lorigan PC; Contributing Clinicians. *Clin Oncol (R Coll Radiol)*. 2020 Jul 1:S0936-6555(20)30273-9. doi: 10.1016/j.clon.2020.06.017
- **ESMO Management and treatment adapted recommendations in the COVID-19 era: Lung cancer.**
Passaro A, Addeo A, Von Garnier C, Blackhall F, Planchard D, Filip E, Dziadziuszko R, de Marinis F, Reck M, Bouchaab H, Peters S. *ESMO Open*. 2020 Jun;5(Suppl 3):e000820. doi: 10.1136/esmoopen-2020-000820
- **Clinical Guidance for the Management of Patients with Urothelial Cancers During the COVID-19 Pandemic - Rapid Review**
Patel K, Choudhury A, Hoskin P, Varughese M, James N, Huddart R, Birtle A. *Clin Oncol (R Coll Radiol)*. 2020 Jun;32(6): 347-353. doi: 10.1016/j.clon.2020.04.005
- **Lymphocytopenia and Radiotherapy Treatment Volumes in the Time of COVID-19**
Joseph N, Choudhury A. *Clin Oncol (R Coll Radiol)*. 2020 Jul;32(7):420-422. doi:10.1016/j.clon.2020.04.011

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- **Prostate Cancer Radiotherapy Recommendations in Response to COVID-19**
 Zaorsky NG, Yu JB, McBride SM, Dess RT, Jackson WC, Mahal BA, Chen R, **Choudhury A**, Henry A, Syndikus I, Mitin T, Tree A, Kishan AU, Spratt DE. *Adv Radiat Oncol*. 2020 Apr 1. doi: 10.1016/j.adro.2020.03.010
 - **Practice recommendations for lung cancer radiotherapy during the COVID-19 pandemic: An ESTRO-ASTRO consensus statement.**
 Guckenberger M, ..., **Faivre-Finn C**,...,et al, *Radiother Oncol*. 2020 May;146:223-229. doi: 10.1016/j.radonc.2020.04.001
 - **Practice Recommendations for Lung Cancer Radiotherapy During the COVID-19 Pandemic: An ESTRO-ASTRO Consensus Statement**
 Guckenberger M, ..., **Faivre-Finn C**,...,et al, *Int J Radiat Oncol Biol Phys*. 2020 Jul 15;107(4):631-640. doi: 10.1016/j.ijrobp.2020.05.012
 - **Reduced Fractionation in Lung Cancer Patients Treated with Curative-intent Radiotherapy during the COVID-19 Pandemic**
Faivre-Finn C, et al., *Clin Oncol (R Coll Radiol)*. 2020 Aug;32(8):481-489. doi: 10.1016/j.clon.2020.05.001
 - **Changing radiotherapy review practice in response to COVID-19 in a radiotherapy satellite centre.**
Mason T, Bennett R, White A, Rembielak A. *Journal of Radiotherapy in Practice* 1–3. 17 Jun. 2020, doi:10.1017/S1460396920000527
 - **ILROG emergency guidelines for radiation therapy of hematological malignancies during the COVID-19 pandemic.**
 Yahalom J, Dabaja BS, Ricardi U, Ng A, Mikhaeel NG, Vogelius IR, **Illidge T**, Qi S, Wirth A, Specht L. *Blood*. 2020 May 21;135(21):1829-1832. doi: 10.1182/blood.2020006028
 - **Considerations for the Treatment of Oesophageal Cancer With Radiotherapy During the COVID-19 Pandemic.**
 Jones, C. M., Hawkins, M., Mukherjee, S., **Radhakrishna, G.**, & Crosby, T., *Clin Oncol (R Coll Radiol)*. 2020 Jun;32(6): 354-357. doi: 10.1016/j.clon.2020.04.001
 - **Optimizing lung cancer radiation treatment worldwide in COVID-19 outbreak.**
 Liao Z, Rivin Del Campo E, **Salem A**, Pang Q, Liu H, Lopez Guerra JL., *Lung Cancer*. 2020 Aug;146:230-235. doi: 10.1016/j.lungcan.2020.05.029
 - **Radiation fractionation schedules published during the COVID-19 pandemic: A systematic review of the quality of evidence and recommendations for future development.**
David Thompson, Sue S. Yom, ..., **Ananya Choudhury, Peter Hoskin, Agata Rembielak**, ..., Christopher Estes, *Int. J. Radiat. Oncol. Biol. Phys*. 2020 Aug; In Press. doi: 10.1016/j.ijrobp.2020.06.054

Engagement



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