



Message from Professor Gilbert

When I wrote my last introduction for the newsletter in late January, Sarah Perkins commented “Isn’t it a bit heavy?” When I advised you to ‘prepare for working from home but hope for the best’, little did I realise that we would go into full lockdown, close the university and still not have returned to normal by July. You will have all been following the Covid-19 saga with varying interest but with similar concerns. The university remains committed to the safety of staff and students. With the reopening of our buildings it means we can gradually return to work and I would encourage you to come into work if only for a day to see how it feels and perhaps be reassured that good safety procedures have been put in place. If you have any concerns about returning to the workplace, please get in touch with your line manager and have a full discussion about it.

We have had some great success in the past three months. Evis Sala was awarded a huge EU grant on AI for Covid imaging with Teng and Carola-Bibiane Schonlieb. And our own Ferdia Gallagher was promoted to full Professor! Martin Graves implemented home reporting and put in a large bid to CUH for full workstation capability for home reporting. Martin was at everyone’s constant beck and call to help us report from home and take the numerous MDTs – he deserves a huge thank you from us. Likewise, our own IT team, Gavin and Carlos, ensured that we could work effectively from home.

A big welcome to our new administrative team. We are delighted to have such an enthusiastic knowledgeable group of people now in place to work effectively and efficiently. I think most of you have now met them and their details are listed on the web site. Please contact them – they are all more than willing to help us.

We had a Zoom call about the challenges of working from home with children and managing the almost impossible task of home schooling while working full time! Please be reassured that as the school holidays are about to start and the September school plans still uncertain that we remain supportive of all our staff and recognize that you cannot deliver 100% while children need your attention. Families come first! And we appreciate the juggling that many of you are doing very successfully.

The past three months have been unusual in so many ways and our stress levels are higher than usual. Many of you have been doing clinical work, Covid research as well as your normal research – a huge achievement! It is really important to take our holidays and take time away from the computer and emails. I know there are limited opportunities to travel at the moment, but it is very important to have some time away from work.

I look forward to seeing you in person at some point soon. In the meantime, please enjoy the summer, stay safe and look after yourselves and your families.



FEEDBACK

We are currently working hard to improve communication and development within the department, and a big part of that work requires feedback from you. We are open to hearing any feedback or suggestions you have. If you’d like to provide feedback on anything department related, in addition to coming to see us, you can now provide it through a feedback form located on the Internal website via <http://radiology.medschl.cam.ac.uk/internal/feedback/>

We want to hear from all of you in relation to all achievements, updates, news and any information you would like to share with the Department.

Department News

Professor Gilbert to be awarded the Gold medal by European Society of Radiology in 2021

In March 2021, Professor Gilbert will be awarded the Gold medal by European Society of Radiology (ESR), an apolitical, non-profit organisation dedicated to strengthening and unifying European radiology.

In their letter to her it states “The ESR Gold Medal is bestowed on individuals with an extensive scientific record in radiology, and beyond. Your outstanding, internationally recognised, achievements and your leadership, in radiology and in medicine in general, make you a most worthy candidate for this honour.”

Professor Gilbert said “I am honoured and delighted to be given this award. It is wonderful to have Radiology at the University of Cambridge recognised in this way. I am in no doubt that without the fantastic work undertaken by my colleagues and peers and the huge infrastructure support here that I would not have been able to deliver as much research as I have. This award is shared by the many lovely people with whom I work”



Professor Evis Sala RSNA Honored Educator Award

Professor Evis Sala has been selected as one of the recipients of the 2020 RSNA Honored Educator Award. The Radiological Society of North America (RSNA) promotes excellence in patient care and health care delivery through education, research and technologic innovation.

This achievement recognizes Professor Sala’s dedication to furthering the profession of radiology by delivering high-quality educational content for the RSNA. The award serves as a benchmark of academic productivity in support of a meaningful and successful radiology career.

<https://www.rsna.org/en/education/education-awards/honored-educator-award>



A Lockdown Story or Two

“Some of us have had the illness and have had the scary experience of seeing our friends or relatives taken by ambulance into the hospital, whilst we ourselves were still ill or recovering. Care from the NHS at Addenbrookes was excellent, as was the support from the ambulance services, NHS 111, GPs and other parts of the NHS.”

Department News

Professor Gallagher

We are delighted to announce that Dr Ferdia Gallagher has been successfully promoted to Professor from October 2020.

In response to the news and congratulations from Professor Fiona Gilbert, head of the Department of Radiology at the University of Cambridge, the current Dr Gallagher said

"It is a great honour to receive this and I am indebted to the talented researchers I have worked with over many years who have made this possible. Although the title may go to me, it is in recognition of the hard work of so many in the department... One of the most enjoyable aspects of my job is that I am fortunate to work with a group of bright, dedicated and engaging individuals who undertake and support research in so many diverse ways. I would like to take this opportunity to thank them all.

One of our aims is to help improve the lives of patients with cancer: it is often easy to lose sight of this at difficult times such as these, but I know that the work we do is making a real difference in ultimately achieving that goal."

And finally Dr Gallagher has, promised

"At some point in the future, we will have a celebration and together we will recognise that we have got through this experience and have learnt more about what really matters to us: for me, it is working in this great department with such a wonderful group of individuals."



Dr Fulvio Zaccagna, Dr Hao Li and Dr Pascal Ruetten - PhD approval

We are delighted to inform you all that the Board of Graduate Studies, have approved Dr Fulvio Zaccagna, Dr Hao Li (Leo) and Pascal Ruetten for the Degree of PhD.

Fulvio has been developing new imaging methods for studying the biology of brain tumours such as glioblastoma. This work has included novel diffusion methods such as VERDICT, hyperpolarised carbon-13 MRI and sodium MRI.

Dr Ferdia Gallagher said of Fulvio "He has done a fabulous job and has been a great colleague over the last few years. He is currently undertaking his clinical fellowship in Toronto and hopes to continue his academic career when this is complete."

Leo has been developing new MRI methods for non-contrast-enhanced angiography (NCE-MRA) for studying the peripheral vasculature. This work has included novel weighted subtraction methods combined with highly accelerated imaging using compressed sensing.

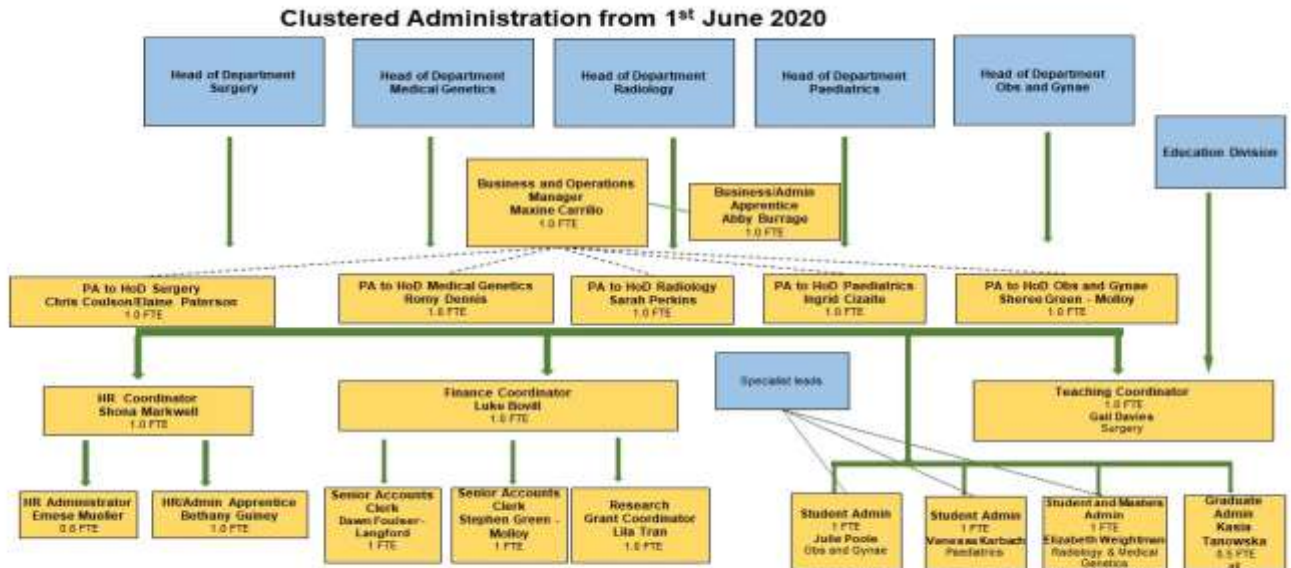
Dr Andrew Priest said of Leo "His work has been very creative and of a very high standard. He has been a pleasure to work with over the last few years. He is currently continuing as a postdoc in the department working on advanced methods for renal and prostate MRI."

Professor Fiona Gilbert said of Pascal "Pascal has worked tirelessly throughout his time in Radiology to achieve his goal of his PhD. He was a real pleasure to have in the department and contributed to the community by being departmental student representative. Despite several set backs he achieved his goal and we all wish him well in his future career. "

We would all like to wish all three our warmest congratulations on this great achievement.



Department News



New Cluster Admin services for the Department

The 1st June heralds a reorganisation of the administration team for the five smallest departments within the clinical school. Please see the message below from Mary Howe who has been helping Megan and the clinical school team put this new admin team in place. You will be relieved to know that our own Radiology team remains intact – Sarah Perkins, Gavin Mortimer and Carlos Coutinho. In addition we will have Dawn, whom many of you met before lockdown helping with finance. The new team start tomorrow and this will hopefully streamline many of the processes that are required in the department – HR, finance, etc... It will take a little time to bed it down as we hampered by working remotely so please give them all the support you can – and be kind and patient!

From Mary Howe:

“Most of you will already be aware that a reorganisation of professional services support has been taking place for the five departments of Medical Genetics, Paediatrics, Obstetrics and Gynaecology, Radiology and Surgery. This Cluster of departments will be supported from 1 June by a new team structure. New webpages have been set up on the Office of the School of Clinical Medicine website (<https://office.medschl.cam.ac.uk/>) to provide information about the new structure, its members, work the new teams will cover and how to contact the teams. You will need your Raven password to access the main Office webpage; then go to ‘Departmental Information’ (top right) and then ‘New Professional Services Team’. Please let me know if you are unable to access the Office of the School of Clinical Medicine website.

These pages include details of work the different teams will cover so that you know which team to contact for your particular requirement. New generic email addresses have been created for use from 1 June so that an email you send should always be read by someone in the relevant team, even if other members are not working.

Newly appointed members of the structure will almost all join from 1 June and will initially, like the rest of us, be working remotely. Training has already been organised so they will as soon as possible be fully familiar with everything that’s needed across the Cluster departments. Where workload has permitted, many members of the structure who were already working across the Clinical School have already been familiarising themselves with departments in the Cluster which may have been new to them.

While she gets to know the new Cluster the new Business and Operations Manager will be supported by Megan Wilkins and myself; we will also help the teams with handover of departmental business.”

<https://office.medschl.cam.ac.uk/>)

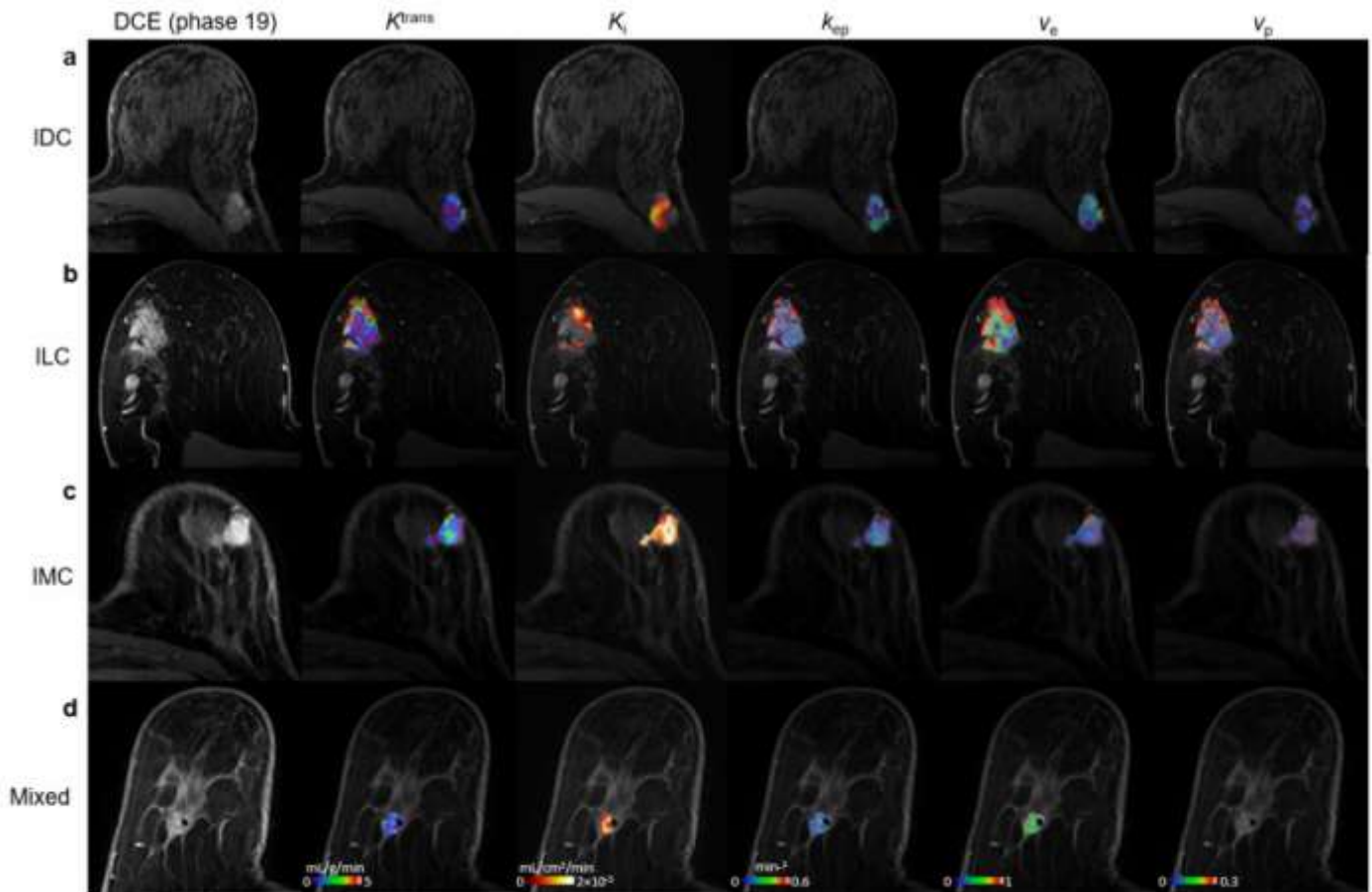
A Lockdown Story or Two

“Working from home will become the “new normal” as the cliché goes. This is a big positive for those of us juggling work with caring for ill, elderly, young or vulnerable people and teaching children, but we are badly missing seeing our colleagues and feeling the connection that comes with meetings.”

Department News

Hypoxia and perfusion in breast cancer: simultaneous assessment using PET/MR imaging

Julia C Carmona-Bozo, Roido Manavaki, Ramona Woitek, Turid Torheim, Gabrielle C Baxter, Corradina Caracò, Elena Provenzano, Martin J Graves, Tim D Fryer, Andrew J Patterson, Fiona J Gilbert



The figure shows the peak enhancement phase of DCE-MRI (corresponding to phase 19), K^{trans} , K_i , K_{ep} , V_e and V_p maps of 4 different breast cancers. Figure a. illustrates an invasive ductal carcinoma (IDC), Figure b. an invasive lobular carcinoma (ILC), Figure c. an invasive Mucinous carcinoma (IMC) and Figure d. a mixed invasive carcinoma (with ductal and lobular components).

The lack of oxygen in tumour cells (hypoxia) is associated with poor prognosis and treatment resistance in solid tumours, including breast cancer. However, hypoxia as well as the blood flow (perfusion) of tumour cells, is a dynamic process which varies in time; seconds, minutes or hours and therefore, hypoxia can complicate the interpretation of imaging findings. We explored the relationship between hypoxia and vascularity in breast tumours through combined ¹⁸F-fluoromisonidazole (¹⁸F-FMISO) PET/MRI with simultaneous assessment circumventing the effect of temporal variation in hypoxia and perfusion.

For this study, women with histologically confirmed primary breast cancer underwent a simultaneous ¹⁸F-FMISO PET/MR examination. Tumour hypoxia was assessed using influx rate-constant K_i and hypoxic fractions (%HF), while parameters of vascular function (K^{trans} , k_{ep} , v_e , v_p) and cellularity (ADC) were derived from DCE and DWI-MRI, respectively. Additional correlates included histological subtype, grade and size. Relationships between imaging variables were assessed using Pearson correlation (r).

After assessing 32 lesions from 29 participants, we observed hypoxic fractions >1% in 6/32 (19%) cancers, while 18/32 (56%) tumours showed a %HF of zero. The presence of hypoxia in lesions was independent of histological subtype or grade. Mean tumour K^{trans} correlated negatively with K_i ($r=-0.38$, $p=0.04$) and %HF ($r=-0.33$, $p=0.04$), though parametric maps exhibited intra-tumoral heterogeneity with hypoxic regions colocalising with both hypo and hyperperfused tumour areas. No correlation was observed between ADC and DCE-MRI or PET parameters. %HF correlated positively with lesion size ($r=0.63$, $p=0.001$).

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We concluded that hypoxia measured by 18F-FMISO-PET correlated negatively with Ktrans from DCE-MRI supporting the hypothesis of perfusion-driven hypoxia in breast cancer. Intratumoural hypoxia-perfusion relationships were heterogeneous, suggesting that combined assessment may be needed for improving disease characterisation, which could be achieved using

Unraveling tumor-immune heterogeneity in advanced ovarian cancer uncovers immunogenic effect of chemotherapy

Alejandro Jiménez-Sánchez, Paulina Cybulska, Katherine LaVigne Mager, Simon Koplev, Oliver Cast, Dominique-Laurent Couturier, Danish Memon, Pier Selenica, Ines Nikolovski, Yousef Mazaheri, Yonina Bykov, Felipe C. Geyer, Geoff Macintyre, Lena Morrill Gavarró, Ruben M. Drews, Michael B. Gill, Anastasios D. Papanastasiou, Ramon E. Sosa, Robert A. Soslow, Tyler Walther, Ronglai Shen, Dennis S. Chi, Kay J. Park, Travis Hollmann, Jorge S. Reis-Filho, Florian Markowitz, Pedro Beltrao, Hebert Alberto Vargas, Dmitriy Zamarin, James D. Brenton, Alexandra Snyder, Britta Weigelt, Evis Sala & Martin L. Miller. Unraveling tumor-immune heterogeneity in advanced ovarian cancer uncovers immunogenic effect of chemotherapy. *Nat Genet* (2020). <https://doi.org/10.1038/s41588-020-0630-5>

In metastatic cancer, the degree of heterogeneity of the tumor microenvironment (TME) and its molecular underpinnings remain largely unstudied. To characterize the tumor-immune interface at baseline and during neoadjuvant chemotherapy (NACT) in high-grade serous ovarian cancer (HGSOC), we performed immunogenomic analysis of treatment-naive and paired samples from before and after treatment with chemotherapy. In treatment-naive HGSOC, we found that immune-cell-excluded and inflammatory microenvironments coexist within the same individuals and within the same tumor sites, indicating ubiquitous variability in immune cell infiltration. Analysis of TME cell composition, DNA copy number, mutations and gene expression showed that immune cell exclusion was associated with amplification of Myc target genes and increased expression of canonical Wnt signaling in treatment-naive HGSOC. Following NACT, increased natural killer (NK) cell infiltration and oligoclonal expansion of T cells were detected. We demonstrate that the tumor-immune microenvironment of advanced HGSOC is intrinsically heterogeneous and that chemotherapy induces local immune activation, suggesting that chemotherapy can potentiate the immunogenicity of immune-excluded HGSOC tumors.

Blog article by Katherine LaVigne Mager: <https://tinyurl.com/y7wf3n79>

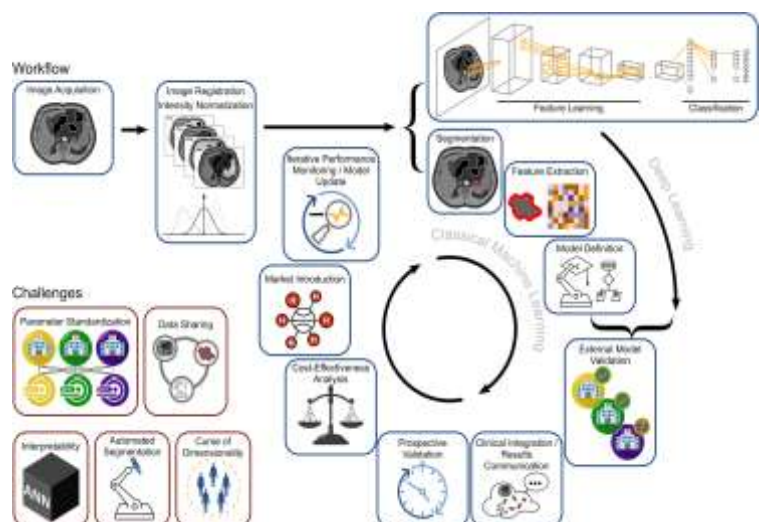
Computer assisted diagnostic tools in kidney cancer –ready for prime time?

Ursprung, S., Beer, L., Bruining, A. et al. Radiomics of computed tomography and magnetic resonance imaging in renal cell carcinoma—a systematic review and meta-analysis. *Eur Radiol* **30**, 3558–3566 (2020). <https://doi.org/10.1007/s00330-020-06666-3>

Research interest in the automated extraction of imaging features and their association with biological correlates such as tumour subtype increased dramatically in the past decade. Numerous diagnostic models to determine tumour grade, histology and patient prognosis have been proposed but have had very little clinical impact. Evis Sala, Professor of Oncological Imaging, and her team have conducted a systematic review and meta-analysis to determine which factors hinder rapid adoption of promising algorithms into clinical practice.

The study team identified the hesitation to share data and code among researchers as a major obstacle to the independent validation of proposed algorithms.

Additionally, the design of many studies could be improved through careful constructions of training and test datasets, better control for multiple comparisons and prospective validation. The study has been accepted for publication in *European Radiology* and its message resonated well with Professor Yves Menu, Editor in Chief, who expressed his hope that the paper may help avoid the most common methodological errors in the future.



Department News

rapiD and secuRe AI imaging based diaGnosis, stratification, fOllow-up, and pre- paredness for coronavirus paNdemics (DRAGON study)

Lead researchers from University of Cambridge - Professor Carola-Bibiane Schönlieb, Department of Applied Mathematics and Theoretical Physics; Professor Evis Sala, Department of Radiology; Dr Zhongzhao Teng, Department of Radiology.

European Commission, Innovative Medicines Initiative (IMI) funded

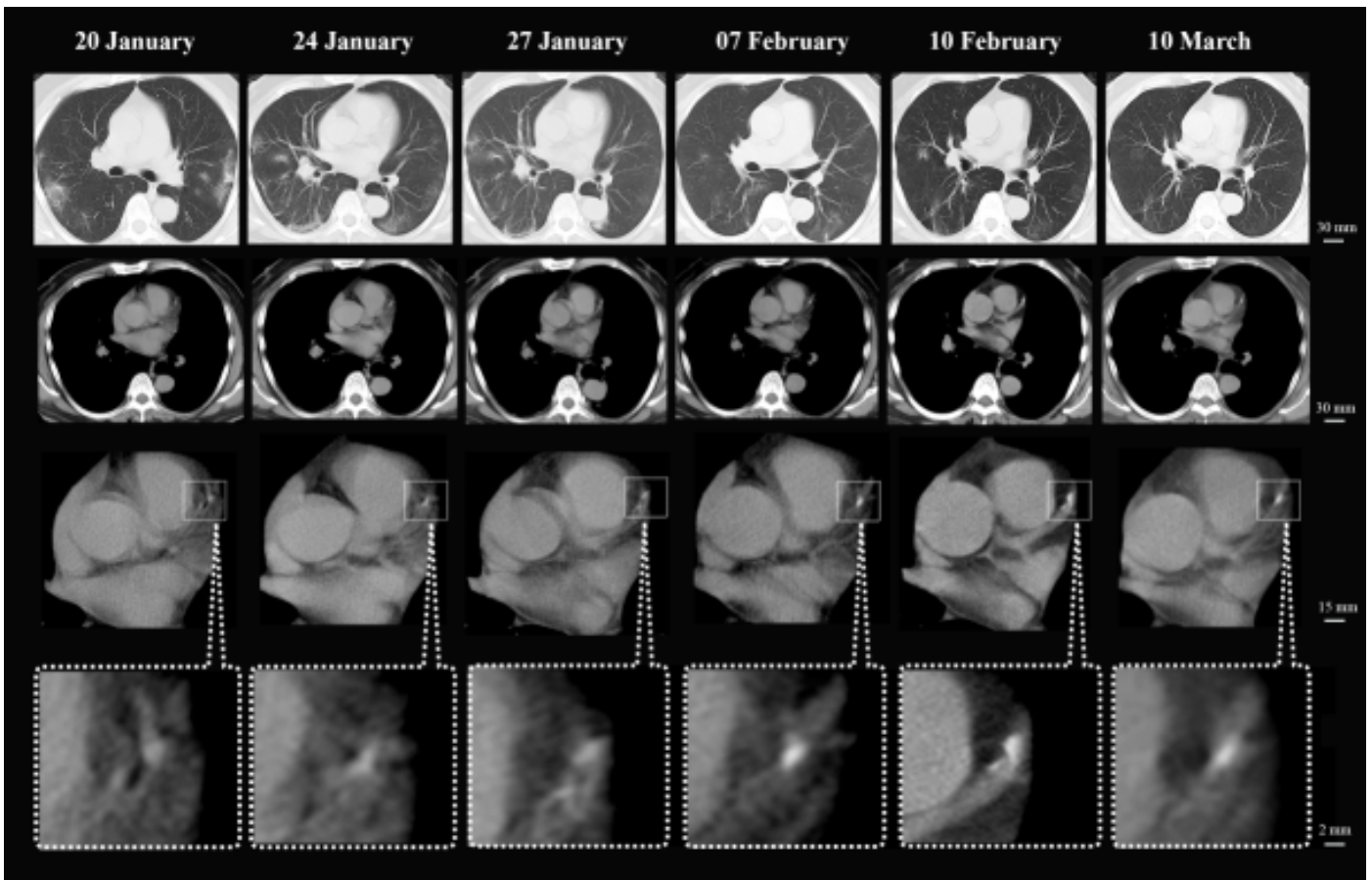


Figure. The development of an asymptomatic coronary atherosclerosis during and after COVID-19 infection as visualised by series of computed tomography imaging (Top row: lung damage induced by COVID-19 infection; 2nd row: the overall chest imaging; and 3rd and 4th rows: local views of a coronary atherosclerotic plaque showing the change of calcified tissues). This patient (age 55 years) admitted to a hospital in Wuhan, China, on 20 Jan 2020 with complaints of muscular soreness for 5 days and fever for 2 days. The BMI was 29.67, blood pressure 78/120 mmHg (diastole/systole). Elevated inflammatory levels were found with laboratory examinations at the admission: leucocyte count, $16.1 \times 10^9/L$; hypersensitive C-reactive protein, 14.46 mg/L; interleukin 6 (IL-6), 18 pg/ml; and other factors were in normal physiologic ranges except for glucose (6.31 mmol/L). The patient was discharged on 11 Feb 2020 and followed-up on 10 March 2020.

DRAGON project is a multinational consortium of 21 enterprises, research institutes, and hospitals from 8 countries with the aim to achieve a multi-faceted diagnostic and prognostic platform and a precision medicine approach combating COVID-19 pandemic. This consortium will together realize a patient empowerment centred decision support system that will enable multiple stakeholders to participate in improved and more rapid diagnosis and prognosis, as well as the potential of precision medicine for accelerated development of new therapies. Citizens and patients will be empowered to contribute to the efficient planning and usage of resources. With quick response from Prof Schönlieb, Prof Sala and Dr Teng, data from the Chinese epidemic have been collected and will be used to validate and further optimise a European scalable radiological diagnosis/prognosis solution. New data and sample collection efforts will be used to perform molecular profiling, which - using advanced AI techniques will be shaped into a precision medicine approach. These initial outputs will undergo further enhancement and assessment to evaluate the value they add to the development of a decision support system. The entire effort will be supported by the deployment of a federated machine learning system that will allow for the GDPR compliant use of multinational data resources. The various iterations of the decision support system and the federated machine learning system will be made available to other coronavirus initiatives with the intent to develop a stakeholder community that forms the basis

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for a highly efficient innovation ecosystem. DRAGON will be one of the first to develop innovative machine learning, and clinical procedure improvement that will potentially make a huge socio-economic impact for the coronavirus outbreak.

Detailed aims include:

- Deliver scalable diagnostic and prognostic models based on imaging that are more efficient and accurate for supporting medical decision making and resource planning.
- Accelerate new therapy development by developing a precision medicine approach that adds molecular profiling and AI enhanced analysis to the multi-faceted scalable diagnostic and prognostic models.
- Deploy a federated machine learning system that will support fast track innovation by enabling continued data driven improvement while expanding the innovation capacity of this and other initiatives by providing a means to efficiently share and analyse data at scale.
- Engage stakeholders in the development of a patient empowerment centered decision support system that considers the entire patient journey and incorporates the outputs of the first three objectives.

We love showing off!

Actually what I should write is “we love showing off the work you all do”.

Our website (<https://radiology.medschl.cam.ac.uk>) and Twitter (https://twitter.com/radiology_UOC) are great places to publicise the great work you are all doing. However, they can only be as good as the articles that you provide. We sometimes notice that there are lots of things you all do that would be fantastic to add to the website and Twitter feed but are never flagged up to us.

So, no more hiding your achievements. Please let us know of articles you’ve just had published and we can show them off and advertise them for you. Attended an event? Send us a quick article (doesn’t have to be long). Let’s show the world how busy and amazing you all are. Have a Twitter account and just added some great Radiology related news, let us know? PhD approved? Let us celebrate and let the world, or at least our audience, know. Proud of work you are doing, invented a cure, discovered a new particle and revolutionised our understanding of the universe?

The articles don’t need to be long, we can lift your abstract to use if you are happy. Photos, images, diagrams all welcome, they make articles so much more interesting.

If you are not sure if something is ok, ask.

Small Twitter Favour

Whilst we can add the Department’s news and events, it would be great if people could flag up to us tweets they think we should retweet and/or like. It could be your own, radiology related, related to your research, medical School, university related tweets. As long as they are in line with the Department and University.

Just send your suggestions to it-adiology@medschl.cam.ac.uk.

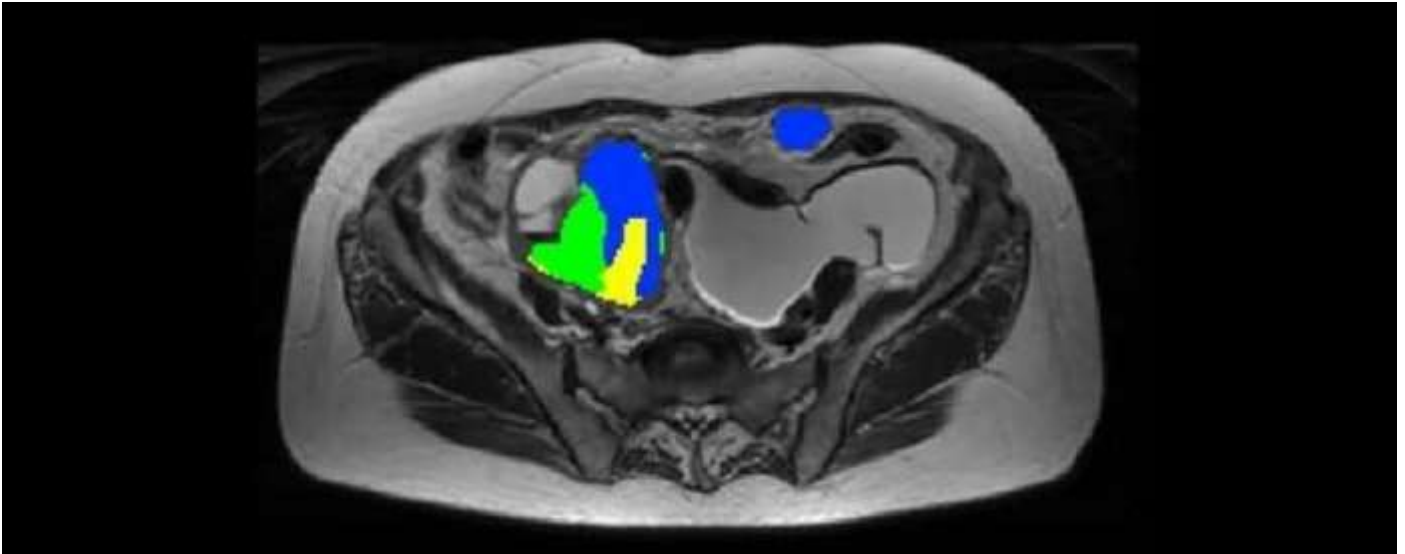


A Lockdown Story or Two

“Even though remote working might increase productivity purely in terms of time devoted to work, the creativity that arises from informal discussions with colleagues is undermined. Of course, this aspect is fundamental in science and a pleasant working environment with physical interactions is mandatory.”

Department News

Integrating Cancer Imaging Biomarker Clinical Research Across the UK



UK National Cancer Imaging Translational Accelerator (NCITA) establishes infrastructure for validation and adoption of cancer imaging biomarkers as decision-making tools in clinical trials and NHS practice.

Researchers and medical experts from nine world-leading medical imaging centres across the UK come together to form an integrated infrastructure for standardising and validating cancer imaging biomarkers for clinical use.

The centres include University of Cambridge, University College London, University of Manchester, University of Oxford, King's College London, The Institute of Cancer Research, London, and The Royal Marsden NHS Foundation Trust, Imperial College London, Newcastle University and University of Glasgow. This unique UK infrastructure provides clinical researchers across the UK with open access to world-class clinical imaging facilities and expertise, as well a repository data management service, artificial intelligence (AI) tools and ongoing training opportunities.

The NCITA consortium, through engagement with NHS Trusts, pharmaceutical companies, medical imaging and nuclear medicine companies as well as funding bodies and patient groups, aims to develop a robust and sustainable imaging biomarker certification process, to revolutionise the speed and accuracy of cancer diagnosis, tumour classification and patient response to treatment.

Professor Evis Sala, Professor of Oncological Imaging in the Department of Radiology at the University of Cambridge said 'We are delighted to be part of NCITA and are coordinating a renal cancer imaging study for the network using a novel agent that is being developed in Cambridge. We are also establishing a shared image repository which will provide the large volume of data needed to "train" new AI tools to accurately analyse patient scans in the future.'

The NCITA initiative is funded by Cancer Research UK and will receive up to £10 million over 5 years.

The NCITA network is led by Prof Shonit Punwani, Prof James O'Connor, Prof Eric Aboagye, Prof Geoff Higgins, Prof Evis Sala, Prof Dow Mu Koh, Prof Tony Ng, Prof Hing Leung and Prof Ruth Plummer with up to 49 co-investigators supporting the NCITA initiative. NCITA is keen to expand and bring in new academic and industrial partnerships as it develops.

To stay up-to-date with NCITA news, follow us on Twitter and see our website

Phenotypically distinct areas (imaging habitats) of ovarian cancer can be identified by advanced analysis of imaging features derived from magnetic resonance imaging (MRI) and positron emission tomography (PET)/computed tomography (CT). These distinct imaging habitats (labeled blue, yellow and green), harbour distinct growth patterns with differential expression of hypoxia- and neovascularization-related markers and distinct somatic genetic alterations.

CREDIT: Image from a Case Report published by: Weigelt B, Vargas HA, Selenica P, Geyer FC, Mazaheri Y, Blecua P, Conlon N, Hoang LN, Jungbluth AA, Snyder A, Ng CKY, Papanastasiou AD, Sosa RE, Soslow RA, Chi DS, Gardner GJ, Shen R, Reis-Filho JS, Sala E. Radiogenomics Analysis of Intratumor Heterogeneity in a Patient with High-Grade Serous Ovarian Cancer. JCO Precision Oncology June 2019; 3:1-9 <https://ascopubs.org/doi/10.1200/PO.18.00410>

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Covid Related Research

I thought you might like to see the extent of the COVID related research that has been undertaken in Cambridge in the clinical school with some important contributions from our department... Big thanks to Amy Frary, Evis Sala, Lucian Beer, Teng Zhongzhao, Evis Carcani, Jonathan Weir-McCall, Megan Wilkins, Sarah Perkins, Martin Graves and many more whom I have not name checked... They have all been involved in writing grant applications/preparing databases/creating the infrastructure which will allow imaging to contribute to the understanding and management of COVID and the various related research studies.

Best wishes

Fiona.

Research & Development Department Newsletter: June 2020

Update from Professor John Bradley CBE, Director of Research

As we move through these challenging times, research at Cambridge University Hospitals has changed as we shift our focus towards the pandemic.

Since early March we have been planning and setting up Cambridge-led studies and supporting national studies. We continue to work closely with our academic and clinical colleagues on and off the campus, and our industry partners in the life sciences community.

In these few months, I have observed the remarkable team effort of staff who have come together to support research into COVID-19. The collaboration between clinical and research staff within the hospital and across the campus has been outstanding. We have modified our research priorities and processes in our new environment. Our staff have moved swiftly to adapt to new ways of working to carry out this important research activity.

Many of our non-COVID studies have paused during this time, and those that have remained open have been risk assessed to protect the safety of our patients.

Cambridge-led COVID-19 research

We have set up many Cambridge-led COVID-19 studies in a very short space of time. Over the next few weeks and months more studies will come online, and our patients and staff will have the opportunity to participate.

Notable successes include the evaluation of a new testing method to speed up the diagnosis of COVID-19 in patients admitted to hospital. This has now been introduced into the clinical service, speeding up triage and ensuring patients receive the best treatment. We have also set up rapid testing facilities for our staff working on the front line who maybe asymptomatic or who have been self-isolating.

Working with the NIHR BioResource, Cambridge led the creation of a new NIHR BioResource cohort for COVID-19. Staff and patients are able to sign up to the NIHR COVID-19 BioResource when they are tested for the virus. Healthy volunteers or those who have had mild symptoms are also able to participate. Over 250 individuals have now signed up, and the aim is for other local NIHR BioResource centres across England to begin recruiting into this new research cohort.

Specific details of our Cambridge-led studies are:

- COVIDx <https://tinyurl.com/y7ox4odo>

The SAMBA (simple amplification-based assay) II assay for SARS-CoV-2 adapts a point-of-care diagnostic test that has been used to give rapid results for the detection of HIV genetic material in Africa. The test was validated in patients with possible COVID-19, before being implemented by the point of care testing team as a clinical service.

- Healthcare Worker Screening

Through a partnership between Cambridge University Hospitals, Occupational Health and University of Cambridge, over 1,000 healthcare workers have been screened for SARS-CoV-2. The results published in eLife showed that 3% of asymptomatic healthcare workers tested positive for SARS-CoV-2, of whom 57% were truly asymptomatic/pauci-symptomatic, 40% had experienced symptoms compatible with COVID-19 more than 7 days prior to testing, most of whom had self-isolated and returned well. Clusters of healthcare worker infection were discovered on two independent wards, and sequencing of the whole viral genome showed that the majority of healthcare workers had the dominant lineage B.1. The study has gained a lot of media attention, demonstrating the importance of screening healthcare workers with minimal or no symptoms in protecting patients and hospital staff.

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- Antibody testing

A number of investigators in Cambridge University Hospitals, the Jeffrey Cheah Biomedical Research Centre, and wider University have developed antibody tests to screen patients and staff for previous exposure to SARS-CoV-2. These include tests that can demonstrate whether antibodies can prevent entry of the virus into cells, thereby neutralising its activity.

Understanding COVID-19:

- NIHR COVID-19 BioResource <https://tinyurl.com/yabnr7sm>

As mentioned above, the COVID-19 cohort of the NIHR BioResource has been established as part of the Cambridge led NIHR BioResource. It offers patients and staff the opportunity to participate in research by providing biosamples and health data that allow us to better understand the disease and its impact. A key question is why some individuals who are infected have few or no symptoms, whereas others have severe symptoms of the disease and some die. As part of a national initiative the NIHR BioResource is recruiting children and young adults who require admission to hospital with COVID-19 to understand if there are genetic factors that make younger people more likely to become sick. <https://tinyurl.com/ya4zolwj>

Clinical trials:

- TACTIC-R <https://tinyurl.com/ycu7wptp>

In addition to participating in national clinical trials, Cambridge University Hospitals is leading the TACTIC-R trial (a multi-Arm Therapeutic study in pre-ICU patients admitted with Covid-19 – Repurposed Drugs).

Whilst the majority of individuals infected with COVID19 appear to have mild or moderate symptoms, around 15% have severe disease of whom around 2% die. The severe phase of the infection typically occurs around 8-14 days into the illness. At this point replication of the virus may be on the decline, and the severity of the symptoms may be due to an excessive inflammatory response driven by the patient's immune system.

TACTIC is a study that will test the ability of drugs that are licensed for use in other conditions caused by immune inflammation, and where the safety profile is known. Patients who are at an early stage of the disease, but are at high risk of developing complications will be invited to take part. The first patient was enrolled on 8 May 2020.

More information:

Further details of how Cambridge is reacting to the COVID-19 pandemic can be found on our NIHR Cambridge Biomedical Research website. Details of the studies we are involved in is regularly updated.

Working during COVID-19

Our campus provides a unique environment to conduct research, with outstanding academic and industry led discovery science, biomedical and clinical research taking place alongside clinical care in the NHS on a single campus.

Many research staff have redeployed into the Trust to support colleagues on the front line and provide care for patients, and also worked alongside clinical colleagues to contribute to research on COVID-19.

I would like to take this opportunity to thank all the staff for their tremendous hard work and support for the research effort in our new and challenging ways of working. Research is vital to combatting this disease, and your contributions have been quite remarkable, but please ensure you remember your own health and wellbeing during these difficult times. Take care of yourselves and use the services provided by the Trust if you need them.

Thank you.

A Lockdown Story or Two

"I grabbed my growing hair and looked forward to the saloon reopening. Days were passing by, and the reopening seemed far away. I did not want a mess of hair to turn myself into a savage and decided to solve it by myself. It must be very challenging as I felt and it must be more difficult than to perform a fluid-structure interaction analysis in the coronary artery with the consideration of heart beating. I bought a hair clipper from Amazon. After receiving it, I first practiced in front of the mirror. After became brave enough, I turned on the clipper and started to shave. I managed to shave my hair by myself in about 20 minutes. It looked good from the front, but not sure in the back. Actually, I did not care as I could not see it anyway, and no one could see it as I worked from home. People say that after working from home for a long time, everyone will learn new skills. It seems that I not only learned a new skill, but also saved money."

Department News

Collaboration and Recruitment



Dimitri, Josh and Jenny from Orthopaedics visited Brookfields for musculoskeletal imaging collaboration and recruitment.

Pub Quiz?

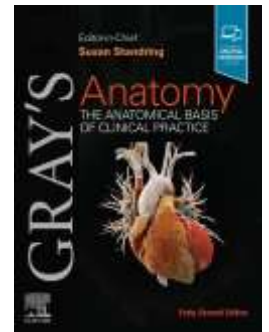


The Spinmasters, our Radiology pub quiz team, has moved online for a weekly virtual contest in lockdown. But don't expect luxury cakes in the kitchen from our winnings – most online quizzes have no prize, and so far we have only won a free single gin and tonic to be collected when the Cambridge Union Society bar reopens. But you can still join us online for the glory; and we'll look forward to sharing a pint in person back at the Frank Lee when lockdown allows.

Contact Mary for more details
Mary.McLean@cruk.cam.ac.uk

Gray's Anatomy

Dr Jonathan Weir-McCall is pleased to announce that, with the help of one of the Cardiothoracic fellows (Julia Sun) and in collaboration with Dr Tom Turmezi from NNUH, the new edition of Grey's Anatomy will feature one of their local patients heart 3D reconstructions as it's front cover. They have also contributed a chapter on coronary vascular anomalies - "CT coronary angiography of anomalous coronary vasculature".



Wednesday Radiology Forums

Although not all our forums are available to view online, you can find those that are on our "Forum and Seminar Recordings" page at <https://tinyurl.com/ybv3qtp3>

Currently we have:

- "Clinical utility of cardiac magnetic resonance imaging in the assessment of cardiac disease" by Dr Luigia D'Errico
- "Covid 19: Imaging" by Dr Nick Screatton (Unfortunately the beginning of this forum was not recorded)

More will be uploaded as time progresses. If you've missed a forum, or just want to revisit it.

Department Personal News

Please welcome

And a sad farewell to...



Cathal McCague
Welcome Trust
Research
Associate



Margherita
Mottola



Lina Jing



Pascal Reuten



Candice Anderson

Congratulations

And finally some very happy news to report! A massive congratulations to Ramona who has asked us to share with you the safe arrival of Anna.

"Our lovely Anna Marie was born on 27 May 2020 at 9pm and is making us the happiest parents in the world! The whole family is well (but tired)."

Congratulations to the new family



A Lockdown Story or Two

In the unprecedented pandemic of COVID-19, the government issued a plan to lockdown the city and keep a social distance of 2 meters. Everyone must work from home except for key workers, and business is closed unless it is truly necessary. Although some people were embarrassed due to insufficient preparation, many people made unprecedented preparations, and even some preparations were confusing. What worried me the most was not the shortage of meat and eggs, etc in supermarkets at the very beginning, but the toilet paper was wiped out, and even tissue paper were snapped up. Our descendants would find this funny and difficult to understand in many years.

"This lockdown has been a roller-coaster of emotions. From the beginning, when suddenly we were told to not go to work anymore and to start working from home, to the end. During the lockdown, many people experienced the fear of not knowing when we were going to be able to meet our beloved ones again, especially due to the travel restrictions around the world. In addition, the thought of our parents (or family members) getting ill and not being able to travel immediately to be with them as soon as possible did not help prevent a general state of anxiety. This lockdown also turned out to be the best thing to do for our wellbeing and health in order to prevent more infections and severe cases"

Cooking has turned into an attraction instead of a necessity but sharing a meal over a casual conversation with colleagues and friends is much missed

This lockdown period has been certainly challenging for all of us. Our working habits and personal lives have been modified accordingly. Our days are busy with virtual meetings, which cannot replace the human relationships though. Probably, we might take this opportunity to be more selective in our daily activities at work.

Department Events



Equality, Diversity and Wellbeing News



Our Equality and Diversity representatives are Leonardo Rundo (staff) and Laura Lechermann (students)

Upcoming Training Opportunities

Networks

The Clinical School has a range of networks for different groups. If you are interested in setting up a network or would like to enquire regarding the existence of a network please email csdiversity@admin.cam.ac.uk with your query.

The University also has a range of networks. Please visit the below page for more information on; BAME staff network, LGBT network, Women's staff network, SPACE network, and more.

<https://www.equality.admin.cam.ac.uk/diversity-networks>

My Family Care update

With government restrictions on care slowly lifting, your Work+Family space is here to help with child, adult and elder care options. Remember Clinical School staff are entitled to two free care sessions through My Family Care. For more details visit:

<https://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employee-benefits/family-friendly/my-family-care>

Clinical School HR Twitter: Keep up to date on School comms

Upcoming Events

Racism at work webinar series

Last week Pearn and Kandola presented a range of webinars on the theme 'Racism at work'. There is now free access to these webinars available at the below link:

<https://pearnkandola.com/events/>

Management Essentials: Communicating Difficult Messages

Date: 15th July 2020 Time: 1pm-2pm (Via Zoom)

Join Zoom Meeting

<https://zoom.us/j/94824417937?pwd=Y3cvbmtHK3dhSfc1akpjdExlbGRJUT09>

Meeting ID: 948 2441 7937

Password: 987958

The above 'management essentials' sessions are designed to support staff in management and supervisory positions. If you would like to join these sessions please add to your calendar and copy and paste the zoom link at the time/date above.

Personal and Professional Development (PPD) Easter Term Flyer

Now available at the below link:

<https://www.ppd.admin.cam.ac.uk/formstemplates/ppd-flyer>

Clinical School HR Twitter: Keep up to date on School comms

We have recently set up our Clinical School HR Twitter and will be regularly Tweeting about news, events, training and updates from the HR team – to include Equality & Diversity, Wellbeing, Recruitment and Employee Relations updates. Follow us by clicking on the following link https://twitter.com/clinical_hr or search Clinical School HR on Twitter. This won't replace other forms of communications but will be an additional communication channel for all staff.

Upcoming Events

Wednesday Forums— 1 CPD credit

Wednesday forums will recommence in September.

Tutorials will carry on as advertised and invites sent out.

Friday Seminars will be advertised and invites sent out.

Department Events

Although not all our forums are available to view online, you can find those that are on our “Forum and Seminar Recordings” page at <https://tinyurl.com/ybv3qtp3>

To receive your CPD certificate, please remember to sign the attendance register. If you are attending via Zoom, please remember to use your full name.

You can now find us on our new Twitter account [@Radiology_UOC](#) as well as <https://radiology.medschl.cam.ac.uk>, where we will be publishing our latest news and upcoming events and any last minute changes that might occur.

Update your Information

In every newsletter, we will be requesting that all department members – **including students** - update three specific tasks for us:

1. Please ensure that your **Symplectic account** is up to date. We pull publication data for the website using this database, so to make sure your publications are up to date on the website.
2. The website pages on research teams and projects are out of date. Any material available for public consumption would be a great help!
3. Please send us any news or information about the projects you’re working on! We want to publicise the department’s achievements as much as possible, and get your names out there. The following are points of contact for research groups:

Ramona Woitek	rw585@cam.ac.uk	Breast imaging and oncologic imaging
Kelly Holmes	Kelly.Holmes@cruk.cam.ac.uk	Advanced Cancer Imaging Programme Manager CRUK
Tristan Barrett	tb507@medschl.cam.ac.uk	Multi-parametric MRI techniques for identifying and characterising prostate tumours
Joshua Kaggie	jk636@cam.ac.uk	Stem cell research for joint repair
Zhongzhao Teng	zt215@cam.ac.uk	The translational application of combination of in vivo medical imaging and mechanical analysis to assess the vulnerability of atherosclerotic lesions.
Tomasz Matys	tm418@cam.ac.uk	MRI and PET for characterization of the extent of primary and secondary brain tumours.
Yuan Huang	yh288@cam.ac.uk	Clinical-oriented risk assessment of CVD
Miranda Townsend	mjt205@medschl.cam.ac.uk	Oncology and haematology trials

Open Access Reminder

As you all know, since HEFCE’s policy change, in order for any publications to be eligible for the REF they must be made Open Access. We must make sure our department is 100% compliant.

The university has a team in place dedicated to making sure this process is as simple as possible and has now linked Open Access with Symplectic Elements so that publication data will be filled automatically from databases.

When a journal accepts your paper for publication, upload it through [Symplectic](#) before you sign any copyright or Open Access agreements.

See this page for more information on how to submit accepted publications:

- <http://osc.cam.ac.uk/open-research/symplectic-elements-deposit-pilot/depositing-articles-symplectic-elements>.

You can also contact the open access team directly at: info@openaccess.cam.ac.uk