

CURRICULUM VITAE

Manish Chand

MBBS BSc FRCS FASCRS MBA PhD

Associate Professor in Colorectal Surgery and Director of Advanced Minimally-Invasive Surgery Programme

Consultant Colorectal Surgeon – University College London Hospital

Personal Details

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| Name: | Manish Chand | GMC: | 6056401 |
| Date of Birth: | 31 st December 1977 | Gender: | Male |
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Manish Chand is currently a Consultant Colorectal Surgeon and Senior Lecturer at University College London. He is also Director of the MS in Advanced Minimally-Invasive Surgery at UCL. He is the Undergraduate Lead for Overseas Elective GI Surgery.

After completing a 1st Class BSc in Neurosciences from Kings College London, Mr Chand graduated from Royal Free Hospital London with MBBS (Hons) and subsequently went on to teach Anatomy and Physiology at Oxford University. He remained an Honorary Neurosciences tutor at Balliol College, Oxford for a further 5 years during which time he completed his Basic Surgical Training through Kings College Hospital London. Whilst completing Higher Surgical Training through the Wessex training scheme including the prestigious Basingstoke Hospital under Bill Heald and Brendan Moran, he gained a PhD from The Royal Marsden Hospital and Imperial College working with the MERCURY Study Group under the supervision of Professor Gina Brown.

Mr Chand has presented several lectures across the globe, has over 100 peer-reviewed publications and book chapters and is involved at editorial level on surgical journals. He is a Key Opinion Leader and recognised expert in laparoscopic rectal surgery and imaging of rectal cancer working closely with innovative digital surgery research including the AIS Channel and Touch Surgery.

Currently, Mr Chand heads colorectal cancer research at University College London specifically fluorescence guided surgery, advanced imaging modalities and augmented reality. This includes supervising a number of postgraduate students. The Masters programme of which he is Director is considered the most innovative and technologically advanced surgery programme of its type with a leading international faculty.

Education & Qualifications

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| 2018: | FASCERS | American Society of Colorectal Surgeons |
| 2016: | PhD | Imperial College London (Professor Gina Brown and Professor Paris Tekkis) |
| 2015: | FRCS | General Surgery and Colorectal Surgery (CCT) Royal College of Surgeons (England) |
| 2009: | MBA | University of Leicester Business School |
| 2006: | MRCS | The Surgical Royal Colleges of Great Britain and Ireland |
| 1996: | MBBS | Royal Free and University College, University of London |
| 1999: | BSc (1st Class) | King's College London, University of London |
| 1996: | GCSE (10 A*) A-level (4 A) | Eltham College |

Research Activity and Student Supervision

- Supervision of MD/PhD student (UCL) and other non-medical postgraduate students
- GI Lead for Undergraduate Surgery – Digestive Health Module MBBS UCL
- Surgical lead for Overseas Elective Students in Surgery - UCL
- CI of COMET Study
- CI of Laparoscopic versus Robotic CME Study
- CI of TIPS Microsphere Study
- Co-investigator on NCRN trial - MARVEL
- Ex-Chair and Founder of Wessex Research Collaborative
- Expert faculty member for various International Colorectal Surgery groups
- Co-Director of MS in Minimally-Invasive Surgery at UCL

Scientific expertise

I have extensive experience in research trial design and development as well as identifying appropriate and specific funding pathways. I have formally attended a number of research trial design and analysis courses. These skills have led to the opening of national portfolio trials and three further trials in set up. My areas of expertise include rectal cancer, minimally-invasive surgical techniques including advanced laparoscopy and robotics, MRI and image-based colorectal cancer therapy, fluorescence imaging, and surgical technology.

Research Focus

I have three main areas of research which are connected through the broad theme of Advanced Imaging. These research interests include the identification and understanding of imaging and clinical biomarkers that indicate poor prognosis in rectal cancer. The management of rectal cancer has been greatly enhanced by a better understanding of disease progression and spread. This has allowed specific treatment strategies to be developed which attempt to improve local and distant control of disease. Whilst precise surgical technique has led to historically low rates of local recurrence, the challenge of distant disease recurrence and ultimately, overall survival still remain. Attempting to understand which tumours are more likely to lead to recurrence and identifying these tumours early are my main research goals. By relating predictive and prognostic tumoural characteristics that are accurately identifiable on non-interventional modalities such as MRI to tumorigenic pathways, novel therapeutic pathways may be exploited for optimal patient management. Working with the Royal Marsden Hospital, Imperial College London and MERCURY Research Group led by Professor Gina Brown and Professor Paris Tekkis, I have been able to relate a specific adverse phenotypical feature of rectal cancer, namely extramural venous invasion (EMVI) to specific patterns of disease recurrence and specific behavior to oncological therapy. In collaboration with Mr Alex Mirnezami at Cancer Research UK/Southampton University Hospital, we have sought to identify the key miRNA sequences which play pivotal roles in tumorigenesis. Further current research involvement includes being the co-investigator for a NIHR portfolio study on the pathological and radiological evaluation of extramural venous invasion in rectal cancer – The MARVEL Study (NCRN 101884). This study has been awarded 3 funding awards through external peer review.

The second focus is the use of image-guided technology can greatly improve disease management in surgery. This encompasses cancer and non-cancer conditions. Specifically, I have a research interest in complex imaging modalities that can better guide surgery to improve outcomes and how this can be incorporated into virtual and augmented reality models to improve training and execution of surgery. This includes stereotactic surgery to improve surgical precision in colorectal cancer and inflammatory bowel disease. Using these technologies, we will be able to develop more complex platforms to rehearse surgery and ultimately become more accurate in our ability to remove disease. Much of this work is conducted in conjunction with my cross-disciplinary colleagues at UCL including the School of Engineering, Computer Science and Robotics/Haptics.

The third area is the use of fluorophores to improve surgical and oncological outcomes. Through a competitive funding application, I have been able to acquire a specific laparoscopic camera system which is able to excite Indocyanine Green (ICG) and demonstrate near-infrared fluorescence in the vascular and lymphatic system. I am currently involved in a Phase II and Phase III trial looking at how the use of ICG can improve patient outcomes. The use of fluorophores will greatly improve our surgical precision in the future in conjunction with

complex imaging modalities which can be integrated into laparoscopic and robotic platforms. To this end I am involved in the research and design of upcoming platforms in industry.

My research intentions over the next 5 years are to link the clinical research through image-based models I have undertaken with molecular biology techniques. I am interested in examining the underlying mechanisms which lead to these distinct phenotypes and whether these can be exploited for therapeutic benefit. I have established excellent links with other groups using similar strategies and hope to continue to collaborate in the future. In parallel, to develop intelligent technologies which will use these imaging modalities to better guide precision surgery through the creation of VR/AR models.