

Research: Why, when and how?

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Why do research?

- Critical thinking
- Question current medical practice
- Improve treatments and patient outcomes
- Develop new therapies
- Understand mechanisms of disease
- Skills learnt will prepare for Consultant role
- Teaching
- Autonomy
- Development of a specialist interest

Training Requirements

Respiratory Curriculum:

ST3: Evidence of critical thinking around relevant clinical questions

ST4: Evidence of developing research ideas and questions. Participation in journal clubs. Able to critically review the literature.

ST5/6: Evidence of preparation for **ST7** requirements

ST7 (CCT): One or more of:

-higher degree or full publication

-national/international presentation (abstract) *and* assessed research course

-pursue research/research degree (MSc) in medical education

When should I start thinking about research?

As early as possible in your training.

For a PhD application it typically takes 6 months -1 year to identify a lab, develop a project and obtain funding.

Clinical projects – typically 1 year depending on funding scheme.

Ethics and R&D approval – 1-6 months (depends on Trust)

How do I start to plan a research project?

Important clinical/scientific question that interests you.

Read the relevant literature – what is already known?

Who is working in this area already?

Develop preliminary data – audit, retrospective studies, case reports, lab based project etc.

Approach a suitable supervisor.

Formulate a research project.

Respiratory Research in the Eastern Deanery

Cambridge University Hospitals:

Professor Edwin Chilvers – *granulocyte biology, ALI, PI3K signalling*

Professor Nick Morrell – *Pulmonary Hypertension, BMPR-II*

Professor Andres Floto – *molecular basis of phagocytosis and phagosomal function, mycobacterial infection*

Professor Stefan Marciniak – *ER stress and disease, genetic variants causing pneumothoraces.*

Dr James Nathan – *ubiquitin proteasome pathway in disease, hypoxia response and regulation.*

Dr Charlotte Summers – *ALI and experimental medicine*

Pleural disease - Dr Sivasothy and Dr Herre

Respiratory oncology – Dr Rintoul

PH –Dr Pepke-Zaba and Dr Toshner

Lung defence – Dr Haworth

Alpha-1 antitrypsin – Dr Mahadeva

Sleep Medicine/NIV – Dr Davies/Quinell

Asthma/allergy – Dr Gore, Dr Nasser

ILD – Dr Parfrey/Simler

NNUH – Professor Andrew Wilson. *Airway inflammation*

Broader Basic/Translational Research Opportunities

- Clinical Lecturer Positions in Experimental Medicine
- Wellcome Trust PhD programme for clinicians:
 - WT Sanger Centre
 - CUH
 - CRUK
 - Gurdon institute
 - Stem cell institute
 - MRC LMB
 - Pathology/Physiology
- Academic clinical lecturer positions.
- Evelyn Trust, Addenbrooke's charitable funding, Papworth charitable funding. *BHF/BLF etc.*
- NIHR fellowships
- MRC fellowships
- CRUK fellowships

Research by previous Eastern Deanery SpRs – past 10yrs

- 48 SpRs undertook higher degrees or substantive research projects
- 28 of these research projects were PhDs
- 33 projects undertaken at Cambridge/Papworth
- 5 research projects at NNUH
- Out of area research - Southampton, Brompton, ICL, UCL, Glasgow, Dundee etc.
- 5 winners of the BLF/BTS Young Investigator Prize
- 11 now in substantive senior academic positions – SRF, clinical lecturers, university professorships.

What we'll cover today

- Selected vignettes of SpR research
- ACFs and Papworth Research - Andres Floto
- Clinical Research Network – Nicky Simler
- Experimental Medicine – Charlotte Summers
- Heart Lung Institute, PH research - Nick Morrell
- Workshop:
 - How do prepare a research proposal
 - Review a journal article

Objectives

- Understand the relevance and importance of research
- Awareness of clinical and scientific research opportunities
- Learn about the research networks that exist in the region
- Gain insight into generating a research proposal
- Critique a research paper

Workshop – writing a research proposal

- Background to the project/work that has led up to the project.
- Study design
- Methods
- Expected outcomes
- Timescale
- Contingency Plans
- Costing and justification of resources
- Use of animals
- Use of human subjects
- Ethical approval.