

## HULL AND EAST YORKSHIRE HOSPITALS NHS TRUST

### 2-YEAR ACADEMIC FOUNDATION PROGRAMMES

#### GRADE

Academic F2 Post in Infection (Dept. of Infection)

#### PLACEMENT

A four month placement with the Dept. of Infection based at Hull Royal and Castle Hill Hospitals

#### THE DEPARTMENT

The Department of Infection is an integrated department of infectious diseases and microbiology that incorporates the Infection Unit on ward 7 at Castle Hill, which was refurbished and opened in 2018, and is the regional referral centre for Hull, East Yorkshire and North Lincolnshire and is supra-regional for some infections (e.g. orthopaedic). The unit currently has 12-beds (all side-rooms), incorporating 6 dedicated negative pressure isolation rooms (for the management of patients suspected/known to have high risk respiratory spread pathogens such as chickenpox, multi-drug resistant TB, SARS, avian influenza and viral haemorrhagic fever), including an 'Ebola-ready' room. The other 6 beds are for contact-precaution infections (e.g. MRSA, *Clostridium difficile*, CRE) or complex infections requiring specific Dept. of Infection expertise. Departmental staff provide a wide-range of infection consultation and outpatient services at both of the trusts main sites (e.g. in-reach to AMU and many other wards, antibiotic stewardship, chronic fatigue, musculoskeletal infection, infection control, hepatitis, HIV, OPAT, TB and microbiology laboratory liaison, validation, bench rounds and duty sessions). The consultants and specialist trainees have a 'hands on' clinical and training ethos and all contribute to both clinical and laboratory duties. Some of the consultants are active nationally or internationally in areas such as hepatitis, sepsis and antimicrobial stewardship.

The research of the department predominantly focuses on the epidemiology and clinical care of important infections common in the NHS (see publication and potential projects lists below). For example, a previous specialist trainee received an investigators prize at the European Congress of Clinical Microbiology & Infectious Diseases 2011 for his work on the local epidemiology of invasive pneumococcal disease (IPD). This led to further investigation by an academic clinical fellow (ACF) who demonstrated the high long-term mortality associated with certain serotypes and that this, even in younger age-groups, is likely to be due to existing, pre-IPD co-morbidity, in particular cancer. GB is affiliated with the Centre for Infection and Immunity, University of York, which provides the potential for collaborative translational research projects, such as that of our current academic clinical fellow (ACF) who is investigating the impact of the route of antibiotic administration on the gut microbiome and volatile organic compounds of the breath.

#### Departmental Consultant and Academic Staff:

DR KATE ADAMS, CONSULTANT PHYSICIAN – Sub-specialty interests in HIV, OPAT, diabetic foot infection, sepsis (HEYHT lead) and department lead for Specialist Trainees

DR GAVIN BARLOW, CONSULTANT PHYSICIAN – Sub-specialty interests in bone and joint infection, antibiotic stewardship (HEYHT lead), outpatient parenteral antibiotic therapy (OPAT), and department lead in research

DR MONICA IVAN, CONSULTANT PHYSICIAN – Sub-specialty interests in ICU, neurosurgical infection, AMU liaison and laboratory lead

DR PATRICK LILLIE, CONSULTANT PHYSICIAN – Sub-specialty interests in Haematology/Oncology], TB and AMU liaison

DR PETER J MOSS, CONSULTANT PHYSICIAN, Interim Clinical Lead – Sub-specialty interests in hepatitis, prison medicine and infections associated with IV drug use

DR ANNETTE (ANDA) SAMSON, CONSULTANT PHYSICIAN – Sub-specialty interest in endocarditis, TB and HIV

DR HITEN THAKER, CONSULTANT PHYSICIAN – Sub-specialty interests in HIV, TB and chronic fatigue syndrome

DR FARAH SHAHI, Academic Clinical Fellow/STr in Infection – Research interests include the GIT microbiome and the relationship with volatile organic compounds from human breath

## Selected publications:

1. Successful treatment of resistant *Burkholderia multivorans* infection in a patient with cystic fibrosis using ceftazidime/avibactam plus aztreonam. **Barlow G**, Morice A. *J Antimicrob Chemother.* 2018 Aug 1;73(8):2270-2271
2. A survey of practice and opinions on the use of topical antibiotics to prevent surgical site infection: more confusion than consensus. Cooper C, Horner C, **Barlow G**, et al. *J Antimicrob Chemother.* 2018 Mar 27
3. Clinical challenges in antimicrobial resistance. **Barlow G. *Nat Microbiol.* 2018 Mar;3(3):258-260**
4. Oral versus intravenous antibiotics for bone and joint infection (OVIVA). Li HK, Rombach I, Zambellas R, Walker AS, **et al** on behalf of the OVIVA trial collaborators. Submitted *N Eng J Med*
5. Adjunctive rifampin for adults with *Staphylococcus aureus* bacteremia. Thwaites GE, Scarborough M, Szubert A, Nsutebu E, **et al** on behalf of the United Kingdom Clinical Infection Research Group (UKCIRG). *Lancet.* 2017 Dec 14. pii: S0140-6736(17)32456-X
6. Development and impact of a massive open on-line course [MOOC] for antimicrobial stewardship. Sneddon J, **Barlow G**, Bradley S, Brink A, Chandy SJ, Nathwani D. Submitted *J Antimicrobial Chemotherapy J Antimicrob Chemother.* 2018 Apr 1;73(4):1091-1097
7. Do medical students feel prepared to prescribe antibiotics responsibly? Results from a cross-sectional survey in 29 European countries. Dyar OJ, Nathwani D, Monnet DL, Gyssens IC, Stålsby Lundborg C, Pulcini C; ESGAP Student-PREPARE Working Group. *J Antimicrob Chemother.* 2018 Aug 1;73(8):2236-2242
8. Surviving bacteraemic *Staphylococcus aureus* infection: a pooled analysis of five national prospective hospital-based cohort studies. Kaasch AJ, **Barlow G**, et al. *J Infection* 2014 Mar; 68(3): 242-51.
9. Causes of Early and Late Mortality Following Invasive Pneumococcal Disease in Hull and East Yorkshire, 2007-2009. C Walsh, J Elston, V Allgar, **G Barlow.** **IDWeek 2014** Available at: [http://scholar.google.com/citations?view\\_op=view\\_citation&hl=en&user=VTBIZUgAAAAJ&cstart=40&citation\\_for\\_view=VTBIZUgAAAAJ:g5lzvAfSwC](http://scholar.google.com/citations?view_op=view_citation&hl=en&user=VTBIZUgAAAAJ&cstart=40&citation_for_view=VTBIZUgAAAAJ:g5lzvAfSwC)
10. Long Term Mortality Following Blood Stream Infection. Lillie P, Allen J, Hall C, Walsh C, Adams K, Thaker H, Moss P, **Barlow G.** *Clinical Microbiology Infection* 2012 Nov 15. doi: 10.1111/1469-0691.12101.
11. Increasing incidence of invasive pneumococcal disease and pneumonia despite improved vaccination uptake in Hull and East Yorkshire, United Kingdom, 2002-2009. J Elston, A Santaniello-Newton, J Meigh, D Harmer, V Allgar, T Allison, G Richardson, R Meigh, SR Palmer, **G Barlow.** *Epidemiology and Infection* 2012 Jul; 140(7): 1252-66.
12. Predicting mortality in patients with community-acquired pneumonia and low CURB-65 scores. Ronan D, Nathwani D, Davey P, **Barlow G.** *European J of Clinical Microbiology and Infectious Diseases* 2010; 29: 1117-24. Epub 2010 Jun 3.

13. An evaluation of the usefulness of *Staphylococcus aureus* serodiagnosis in clinical practice. Elston J, Ling M, Jeffs B, Adams K, Thaker H, Moss P, Meigh R, **Barlow G.** *European J of Clinical Microbiology and Infectious Diseases* 2010; 29: 737-9. Epub 2010 Mar 19.
14. Evaluation of the performance of CURB65 with increasing age. Parsonage M, Nathwani D, Davey P, **Barlow G.** *Clinical Microbiology and Infection* 2009; 15: 858-64.
15. Community-acquired MRSA: The East Yorkshire Experience. Elston J, Meigh J, Kearns AM, Jordan-Owers N, Newton A, Meigh RE, **Barlow G.** *J Hospital Infection* 2009; 72: 307-13.

### The type of work to expect and learning opportunities

This post will be of interest to those considering an academic career in an infection related specialty such as combined infection, genitourinary medicine or public health, but also to those with an interest in other internal medicine subspecialties and emergency medicine.

The exact research project will be planned in discussion with the trainee, but is likely to be one of the projects listed below (or similar), or, after discussion, could be in an area of infection of particular interest to the trainee; the latter will be accommodated whenever possible. Trainees will be well supported with regular in-person contact with GB (or other supervisors). Depending on the nature of the chosen project, the trainee is likely to learn skills in health services research, such as observational methods, quantitative statistical analyses and systematic review, but some projects may include laboratory work. For example, in 2018/19 the department is hosting 4 academic foundation year doctors whose projects are in the following broad areas: 1) microbial epidemiology of fosfomycin resistance and synergy in Gram-negative bloodstream infections (laboratory based); 2) procalcitonin and length of antibiotic therapy (systematic review of the systematic reviews); 3) impact of a dedicated *Clostridium difficile* ward (a before, during, after study); and 4) HIV (clinical project). Trainees will be encouraged and supported to submit their work for conference presentation and publication as appropriate. It is hoped that such projects will 'feed' into applications for local academic clinical fellowship (ACF) posts and further work in those areas. Careers advice and support will also be provided according to the needs of the trainee.

**Potential projects** (these are currently available, but provided as examples only; there are a wide-range of other potential projects that will be discussed with the trainee):

1. Mapping the preferred affinities of commonly used beta-lactam agents to penicillin-binding proteins
2. Is synergy in double beta-lactam therapy predicted by affinities to penicillin-binding proteins?
3. Understanding the relationship between antibiotic use and hospital-acquired *E. coli* bloodstream infection at HEYHT
4. Experience of continuous antibiotic infusions for OPAT at HEYHT
5. Temocillin for Gram-negative bloodstream infection: service evaluation and systematic review
6. Volatile organic compounds in the breath of patients with viral respiratory tract infections
7. Diagnostic tests in prosthetic joint infection: a systematic review of the systematic reviews
8. Antibiotic use towards the end-of-life
9. Declining broad-spectrum antimicrobial use, but improving sepsis mortality: not mutually exclusive

## Where the placement is based

Foundation Year 1	Foundation Year 2
General Medicine/General Surgery/A&E	Academic – Dept. of Infection, Castle Hill Hospital

## Typical working pattern in this placement

During the 4 month academic placement there will be a full-time commitment to the research project during the working week. There are no fixed clinical commitments in the Dept. of Infection, other than those that may be directly related to the project itself, but attendance at the weekly infection educational meeting and trust infection MDT (from 1330 to 1600, Thursday, Ward 7 seminar room) will be strongly encouraged to provide an additional infection related learning opportunity.

## Employer information

Academic supervision will be by Dr Gavin Barlow or one of the other named consultants above.

## Further information

### To visit / chat please contact:

Contact Dr Barlow directly via email: [Gavin.Barlow@hey.nhs.uk](mailto:Gavin.Barlow@hey.nhs.uk)