

Elective supervisor

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Learning objectives

- To develop a better understanding of the common antimicrobials
- To develop an understanding of the treatment of common infections
- To gain insight into microbiology as a career

I have always found microbiology very interesting and have had a great deal of curiosity towards infection since even before medical school when I did work experience with a HIV researcher. My interest has not waned over the years and I have been somewhat disappointed by the absence of microbiology or infectious disease placements during my time at medical school, leaving me with little knowledge on the field. My reasoning for choosing microbiology was therefore threefold: to do a subject that I am interested in, enhance my lacking knowledge in microbiology and to assess microbiology as a future career option.

As my time within the placement draws to an end, I can definitely say that I have enjoyed my elective at Barts and the London, and now consider a career in microbiology/infectious disease my aim. I have had an opportunity to discuss the training programme with the SpRs that I have worked with, and understand that the training programme has been merged with infectious disease. MRCP is therefore required as well as MRCPPath. I also note that training posts within the last few years have become increasingly competitive. However, I feel that this is worth it. I believe that the field will become more fascinating and challenging with the growing problem of antimicrobial resistance and with the advent of diagnostic techniques such as universal PCR assays and full genome sequencing.

My reasoning for choosing antimicrobials as a learning objective is that there are a huge number of different drugs within the class, which I know little about. Whilst we have had some lectures on them and see them used during our other medical placements, I felt I needed a greater understanding. I think that the attitude amongst some doctors teaching us are that the choice of antimicrobials differs from hospital to hospital according to their particular guidelines, and that there is therefore little point learning about them! I have however, learnt a significant amount more about antimicrobials during the placement. I have heard discussions in meetings and handovers about their usage, and have witnessed their use during ward rounds. I have also taken a mental note of any antibiotics that I come across which I know little about, and have researched them upon getting home. I have produced a short list of some of the antibiotics which I have encountered during the placement:

Amoxicillin – aminopenicillin

Co-amoxiclav (Augmentin)

Piperacillin/Tazobactam (Tazocin)

Flucloxacillin

Cefuroxime

Ceftriaxone

Azithromycin

Gentamycin

Amikacin

Ciprofloxacin

Moxifloxacin

Clindamycin – lincosamide

Meropenem

Vancomycin – glycopeptide

Trimethoprim/sulfamethoxazole (Septrin)

TB drugs: Rifampicin, Isoniazid, Ethambutol, Pyrazinamide.

An understanding of the management of common infections is a very practical objective which should definitely benefit my future clinical practice. I have obviously come across many cases of infections during my time doing microbiology. The infections which I have observed tended to be severe or notable in some way, as it is in these cases that microbiology becomes more directly involved. I have produced a short list of some common infections and my understanding of their management below:

- Pneumonia
 - CAP – Amoxicillin +/- Clarithromycin.
 - If severe: co-amoxiclav + Clarithromycin
 - HAP - Tazocin
- Urinary tract
 - Lower
 - Nitrofurantoin, Trimethoprim
 - +/- Gentamycin
 - Pyelonephritis
 - Co-amoxiclav
 - +/- Gentamycin
- Cellulitis
 - Flucloxacillin
- Meningitis
 - If suspected to be bacterial: Ceftriaxone
 - If risk factors for *Listeria*: add Amoxicillin
- Septic arthritis
 - Flucloxacillin

- *C. diff* diarrhoea
 - Metronidazole
 - Vancomycin
- Line infection
 - Remove line + Flucloxacillin

My general understanding of microbiology has definitely improved and I can follow clinical discussions better than I could at the beginning of the placement. I now understand commonly used microbiology abbreviations, such as 'PVL' and 'ESBL'! I have also had the opportunity to learn some virology, which is another very fascinating and rapidly evolving field. I now have a greater understanding of viral infectious disease and serology. I have experienced a wide range of different aspects of microbiology, as I was timetabled with many different consultants for clinics, ward rounds and meetings. For example, I have attended TB clinics, HIV ward rounds, division of infection hand overs, microbiology ward rounds. I have received a greater understanding of infection control within the hospital through spending some time with the infection control nurse. I have also experienced microbiology ward rounds within different contexts, such as ITU, paediatrics, neurosurgery, orthopaedics and diabetes. This has not only improved my knowledge of microbiology, but also other aspects of hospital medicine. I would definitely recommend this elective to future students and I am now seriously considering microbiology as a career.