CONSULTANT MICROBIOLOGIST (TYPE B)
Job Description
Mater Misericordiae University Hospital 39 Hours

Title: Consultant Clinical Microbiologist

Overview of the Role

Microbiology Department

The Microbiology Department at the Mater Hospital provides an accredited service to support the diagnosis, treatment and prevention of infection among patients attending the Mater Hospital and to General Practitioners in the surrounding area. The services provided include a diagnostic laboratory service, an infection control advisory service and both a general and specialist clinical microbiology liaison service throughout the hospital.

The Mater Microbiology Department is INAB accredited and has a Category 3 laboratory for processing high-risk samples, including Mycobacteria specimens. The Department processes more than 120,000 specimens annually. All sub-specialities are practised including Bacteriology, Mycology, Parasitology, and Mycobacteriology. There is a long established Molecular Diagnostics Laboratory, and a Quantaferon Gold test service. The recent repatriation of the CF Lung Transplant service has provided new challenges to the Microbiology Laboratory which is currently expanding in support of this growing and exciting specialist field. Some 17% of specimens are received from General Practitioners. There are 21 scientific staff and 2 laboratory aides in the Department. The 3 consultant staff; Dr. Margaret Hannan, Dr. Maureen Lynch and Dr. Deirdre Brady. There are two Specialist Registrars in the Department.

The Mater Hospital is a 570-bed tertiary referral hospital that provides comprehensive medical and surgical services for adult patients in the surrounding catchment region. There are a number of national specialties located at the Mater and include the National Heart and Lung Transplant Unit, the National Cardiac Surgery Unit, and the National Spinal Injuries Unit. A state of the art new build of 120 single rooms which includes a new ICU, HDU, and specialist Heart and Lung Transplant, Cardiothoracic Surgery, Haematology, Oncology and Orthopaedic Surgery wards has recently been opened. This build also includes 12 new operating theatres, including 7 ultraclean theatres.

The Mater Hospital has also been designated the National Bioterrorism Unit, a specialised unit to diagnose and manage patients with highly infectious diseases, with point of care diagnostics in the unit. There are established links with National agencies such as the Health Protection Surveillance Centre (HPSC) and international agencies such as the European Centre for Disease Control (ECDC).

The Microbiology Department has a major role in the provision of Hospital epidemiology and infection control services for the Hospital. There are 5 full time equivalent infection control nursing staff and one infection control admin staff. There is also a full–time surveillance scientist, who liaises closely with the Infection Control Team (ICT) and provides data sharing links to HPSC. The ICT comprises, all Consultant Microbiology staff, and all infection control nursing staff, the surveillance scientist, and two antibiotic pharmacists, In addition, the Infection Control Committee comprises a representative consultant medical and surgical staff members and, in line with HIQA standards on Infection Prevention and Control and is chaired by the CEO.

The Department has an academic attachment to University College Dublin and there is a major commitment to undergraduate and postgraduate teaching and research, which is strongly encouraged. The Department also has a part-time National CF Registry admin staff and a part-time general admin support staff who organise journal clubs, invited speakers, and general admin work.
The Department is recognised for training by the Royal College of Pathologists and the Institute of Biomedical Science. There are strong clinical links between the Microbiology Department and the clinical teams with daily consultation with hospital clinicians and general practitioners. In particular there is a daily ward round in the Critical Care Unit, ICU and HDU attended by a Consultant Microbiologist and Specialist Registrar. There is a twice weekly multidisciplinary ward round, Tuesday lunch time 1.00 - 2.00 pm and Friday 8.00 to 9.00pm with the Heart and Lung Transplant team attended by a Consultant Microbiologist and Microbiology SpR. Similar multidisciplinary rounds are attended in Haematology /Oncology, Orthopaedics, and Vascular surgery. A monthly MDT meeting with the respiratory, public health, infection control team and the laboratory scientist on Tuberculosis is also organised and attended by Microbiology Consultants and Microbiology SpRs.

Teaching/training of scientific and medical staff is supported and encouraged. The Microbiology Department are also regular contributors to Medical Grand Rounds.

Antimicrobial stewardship is an ongoing commitment of the Consultant Microbiologists. A monthly Antimicrobial Stewardship meeting is organised and attended by the medical microbiology team, antimicrobial pharmacists, and the use, and appropriateness of antimicrobial prescribing audited and reviewed at the Drug and Therapeutics committee. Consultant Microbiologist are members of the Drug and Therapeutic Committee and responsible for ensuring antibiotic data is fed back to this committee.

Duties of the Post

The new appointee will be expected to participate in the work of the Diagnostic Laboratory and take responsibility for various services.

1. Develop a framework for CF microbiology services as part of the already established Mater Transplant Program

A Clinical Microbiologist with specialist knowledge of CF infection should be part of the CF MDT. The CF Clinical Microbiologist should work closely with the microbiology laboratory providing diagnostic services for the CF MDT and also with the local infection control and prevention team. In order to provide support to the CF MDT for the diagnosis and treatment of infection, the CF Clinical Microbiologist needs to know about the range of infections in CF. In particular, they need to be aware of the role of unusual micro-organisms, the risk of cross infection and the impact of long-term chronic infection on microbiological laboratory testing and treatment. In addition to a good basic knowledge, the CF Clinical Microbiologist should have evidence of CPD in CF microbiology and attend specialist CF meetings and conferences.

The role of the CF Clinical Microbiologist

The CF Clinical Microbiologist should ensure that appropriate laboratory microbiology provision is in place. The individual may be part of the management of the laboratory. Alternatively, these services may be provided through an external contract, in which case the CF Clinical Microbiologist should be involved with setting the terms of the contract and act as an advocate for the CF Centre. The CF Clinical Microbiologist should advise on the diagnosis and treatment of infection including the monitoring of antibiotics. This may be achieved by attendance at the CF MDT meetings. The CF Clinical Microbiologist should also act as an advisor on infection prevention and control in the CF Centre.

Clinical microbiology services and the CF MDT

The following items should be agreed between the CF MDT and the clinical microbiology service.

• Which respiratory samples should be taken and how should they be processed (e.g. sputum, broncho-alveolar lavage, cough swab or a pharyngeal swab).
• Which samples should be taken for the diagnosis of an infected intravascular line.
• Diagnosis of other infections including infections of the gut (e.g. enteric viruses, when and how to test for toxigenic *Clostridium difficile*)
• The level of identification of micro-organisms (e.g. genus, species, subtype) required in individual cases. This may (e.g. confirmation of first infection with Burkholderia spp. with accurate species identification).
• Typing methods and frequency of typing (i.e. how often the CF MDT should send samples for routine surveillance and when additional typing should be done due to suspicion of cross infection)
• Measurement of anti-pseudomonal antibodies where appropriate
• Provision of diagnostic testing for fungal and mycobacterial infection together with level of identification and role of typing
• Susceptibility testing — agreement on the antibiotics to be tested and when susceptibility testing is helpful
• Virology services should include rapid identification of highly pathogenic viruses that may spread between patients — both familiar (e.g. influenza virus) and emerging viral pathogens (e.g. SARS, MERS coronavirus).
• Which results need to be phoned urgently to the CF MDT (e.g. first growth of Pseudomonas aeruginosa, new isolation of Burkholderia cepacia complex and other Burkholderia species, MRSA, possible Mycobacteria seen in sputum).
• Advice on infection prevention and control.

In addition, a robust framework for communication between the microbiology services and the CF MDT should be agreed with;
• daily ward rounds to review patients
• participate in twice weekly MDT meetings
• infection prevention clinic once per week
  o To educate patient’s in infection prevention
  o Assist in patient selection pre-transplant and in post-transplant monitor and follow-up.

Clinical advice on treatment of CF infections

The CF Clinical Microbiologists should work with the CF MDT to draw up guidelines for the use of antimicrobials, including the selection of treatment for clearance of new infections, therapy for acute exacerbation and long-term suppressive antibiotics. The aim is to reduce morbidity and hospital admissions and to use antibiotics responsibly in order to limit the development of resistance. There must be provision of therapeutic drug monitoring of antibiotics. The CF Clinical Microbiologist should ensure that guidelines and advice are available on the maintenance of optimum antibiotic levels in the patient in order to promote effective treatment while minimizing side-effects.

2. Antimicrobial Stewardship

Antimicrobial stewardship is a systematic approach to optimising antimicrobial therapy, through a variety of structures and interventions. Antimicrobial stewardship includes not only limiting inappropriate use but also optimising antimicrobial selection, dosing, route, and duration of therapy to maximise clinical cure or prevention of infection, while limiting the unintended consequences, such as the emergence of resistance, adverse drug events, and cost. Specifically, the goals of antimicrobial stewardship programmes are:

1. To ensure the best clinical outcome, for treatment or prevention of infection

2. To minimise unintended consequences of antimicrobial use including
   a. Adverse drug reactions
   b. Selection of pathogenic organisms e.g. Clostridium difficile
   c. Emergence of antimicrobial resistance

3. To minimise healthcare costs without compromising quality of care

Antimicrobial Consumption & Antimicrobial Resistance
Antimicrobial consumption in hospitals is a key factor in the emergence of antimicrobial-resistant hospital pathogens, such as meticillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), *C. difficile* and multiple-resistant Gram-negative bacteria. Use of certain broad spectrum antibiotic classes appears to be particularly strongly associated with the emergence of such pathogens. For example, a 2006 study of 204 hospitals in 32 European countries showed that overall antimicrobial consumption and, in particular, the level of consumption of quinolone, macrolide and third generation cephalosporin antibiotics were independent predictive factors for the prevalence of MRSA. Use of cephalosporins (particularly third generation agents), glycopeptides and, more recently, quinolones, have been shown to be independent risk factors for emergence of VRE.

The prevalence of resistance to multiple antibiotic classes among Gram-negative hospital pathogens, such as *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*, has increased in recent years, and has been closely linked to levels of antimicrobial consumption. Prior exposure to beta-lactam antibiotics has been shown to be a risk factor for acquisition of extended-spectrum beta-lactamase (ESBL) producing strains of *E. coli* and *K. pneumoniae* in hospitalised adults and children.

Most cases of *C. difficile* associated disease (CDAD) are associated with prior antibiotic use. Although most classes of antibiotics have been identified as risk factors for CDAD, penicillins, cephalosporins, clindamycin and quinolones are the most frequently implicated agents. The recent emergence of a hyper-virulent strain of *C. difficile* has been linked to use of quinolone antibiotics.

**Antimicrobial Consumption & Antimicrobial Resistance in Ireland**

Hospital antimicrobial consumption in Ireland is high, compared to most European countries. In 2014 the median antimicrobial consumption for acute inpatient admissions in Ireland was 85.6 defined daily doses per 100 bed days (DBD), an increase from 77.2 DBD in 2007.

**Antimicrobial Stewardship-Daily and Weekly Activities**

a. Participate in daily Antimicrobial Stewardship rounds in Cardiothoracic Surgery, Heart and Lung Transplant
b. Participate in weekly Antimicrobial stewardship ward rounds in General surgery
c. Participate in monthly antibiotic stewardship meetings
d. Participate and oversee antimicrobial stewardship audit.
e. Participate in training and education of junior medical staff on antimicrobial stewardship
f. Reduce overall antibiotic usage in the hospital, reduce cost of over prescribing antibiotics, delaying the emergence of drug resistance and preventing the emergence of *Clostridium difficile* infection.

**Other duties of the post will include:**

3. **General Microbiology Laboratory**
   a. Supervision of laboratory daily rounds, review of diagnostic methods, processing of specimens, authorisation and interpretation and communication of results.
   b. Participate in laboratory accreditation process.

4. **Overview of CF laboratory services**

The CF Clinical Microbiologist should ensure that the full range of microbiology laboratory tests needed for the CF Centre is available and that the laboratory service provided is based on published guideline. The laboratory should be fully accredited by a recognized national scheme for clinical microbiology and should participate in external quality assurance, which includes CF-associated pathogens. There should be provision to send relevant samples to a reference laboratory specializing in CF microbiology when required.
The laboratory should provide accurate and timely results to the CF Centre with an agreed system for notifying urgent and important results. The technical staff in the laboratory should have sufficient expertise and knowledge to deal with the complex microbiology of CF infections. There should be a framework for recording and investigating errors and other incidents, with evidence of how the lessons learned are used to inform a programme of service improvement.

The service should be regularly audited. Examples of audits are the turn-around time (i.e. the time between the receipt of the sample in the laboratory and the time when the result is available to the CF MDT), the accuracy of identification and susceptibility testing, and the appropriate and prompt communication of urgent results to the CF MDT.

5. **Clinical Role**

Providing a 24/7 consultancy service to all hospital clinicians on infections and treatment on a 1 in 4 rota. Providing specific daily ward rounds services to major hospital services, in particular the National Cardiac Surgery and the Heart and Lung Transplantation program and cover for the Spinal Injuries, Haematology / Oncology, Vascular and Orthopaedic services.

Providing consultant-led microbiological input to the Critical Care MDT on a daily round basis. Providing clinical advice on the treatment of CF infections on a daily basis to the Lung Transplant team. The CF Clinical Microbiologists should work with the CF MDT to draw up guidelines for the use of antimicrobials, including the selection of treatment for clearance of new infections, therapy for acute exacerbation and long-term suppressive antibiotics. The aim is to reduce morbidity and hospital admissions and to use antibiotics responsibly in order to limit the development of resistance. There must be provision of therapeutic drug monitoring of antibiotics. The CF Clinical Microbiologist should ensure that guidelines and advice are available on the maintenance of optimum antibiotic levels in the patient in order to promote effective treatment while minimizing side-effects.

Consultant-led, Outpatient clinic for complex CF Transplant infections both pre and post-transplant.

6. **Infection prevention and control**

- To act as an active member of the Hospital Infection Control Committee, chaired by the Chief Executive.
- **Infection prevention and control in CF**
  The CF Clinical Microbiologist should work with the CF MDT and the local infection control team to develop a local infection control and prevention policy and procedures in line with expert national and international guidelines. This policy should include: these services may be provided through an external contract, in which case the CF Clinical Microbiologist should be involved with setting the terms of the contract and act as an advocate for the CF Centre. The CF Clinical Microbiologist should advise on the diagnosis and treatment of infection including the monitoring of antibiotics. This may be achieved by attendance at the CF MDT meetings. The CF Clinical Microbiologist should also act as an advisor on infection prevention and control in the CF Centre. This may be delegated to the designated infection control doctor if such a position exists.
- Participating in appropriate surveillance and audit programmes.
- Working with others involved in infection control, particularly the ICNs, but also with other Consultant Microbiologists, Surveillance scientist, Antimicrobial Pharmacists, the Chief Executive and Clinical Director.

7. **Education/Research**

   a) Participate, facilitate or direct research projects in the Department.
   b) Participate in the teaching of undergraduate medical students attending University College Dublin.
   c) Participate in the training of Specialist Registrars in the Department.
   d) Participate in the training/teaching of scientific staff.
   e) Participate with ADON IPC on education training of hospital staff in relation to infection control.
Qualifications

The following qualifications are required:

1. **Professional Qualifications**
   Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of microbiology.

2. **Age**
   Age restriction shall only apply to a candidate where he/she is not classified as a new entrant (within the meaning of the Public Service Superannuation (Miscellaneous Provisions) Act, 2004). A candidate who is not classified as a new entrant must be under 65 years of age on the first day of the month in which the latest date for receiving completed application forms for the office occurs.

3. **Health**
   A candidate for and any person holding the post must be fully competent and capable of undertaking the duties attached to the post and be in a state of health such as would indicate a reasonable prospect of ability to render regular and efficient service.

4. **Character**
   A candidate for and any person holding the post must be of good character.

5. **Entry to competition/recruitment process**
   For the purposes of eligibility for entry to any competition or recruitment process associated with this post, a candidate cannot be appointed as a Medical Consultant unless (s)he is registered as a Specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council of Ireland. Successful candidate must be registered as a Specialist in the relevant specialty on the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council of Ireland within 180 days of the day of interview. Should the successful candidate not be registered as a Specialist at that time, the post may be offered to the next suitable candidate (or, in the case of HSE posts, the Public Appointments Service may choose not to recommend that candidate to the employer). Should no suitable candidate exist, a further recruitment process may be initiated.

Application

1. Curriculum Vitae (four unbound copies) including particulars regarding qualifications, publications etc. should be forwarded to the Hon. Secretary, Medical Board, Mater Misericordiae University Hospital, 59 Eccles Street, Dublin 7 not later than **Friday 20th October 2017**.

2. Each candidate shall submit, as references, the names, addresses and e-mail contact details of at least three responsible persons to whom he/she is well known, but not related, of which, at least, two shall be from a recent or current employer.

3. Canvassing directly or indirectly by or on behalf of any candidate will automatically disqualify such candidate.

4. Copies of professional and education certificates should be submitted with curriculum vitae. Originals of these documents will be required at interview.

5. Candidates will be required to attend in person before an interview board established by the Mater Misericordiae University Hospital. The Board will not be responsible for any expenses a candidate may incur in attendance for interview.
**Particulars of Post**

This is a **Type B** post and will be based at the Mater Misericordiae University Hospital. The following conditions apply:-

1. The appointment is permanent and of a full-time nature.
2. The person appointed shall be on probation for one year.
3. The terms, conditions and benefits of the Consultant Contract 2008, approved by the Department of Health and Children will apply.
4. Annual leave will be in accordance with the Consultants Contract 2008. It will be necessary to ensure that this leave is taken so that, on receipt of notification, the Administrative Head of the Department/Specialty may make appropriate cover and other arrangements.
5. This post has a teaching association with University College Dublin.
6. Acceptance of the Management structure of the Mater Misericordiae University Hospital and Cappagh National Orthopaedic Hospital, as detailed in the rules of the hospitals, is necessary.
7. The person appointed shall abide by the Ethical Policy approved by the Boards of the Management of the Mater Misericordiae University Hospital and Cappagh National Orthopaedic Hospital.
8. All applications for special leave shall, in addition, be forwarded to the Executive Councils of the Mater Misericordiae University Hospital for consideration. No special leave may be taken without the prior approval of the Executive Councils of the Mater Misericordiae University Hospital.
9. In the event of resignation a minimum of three months' notice must be given in writing to the authorities of the Mater Misericordiae University Hospital.
10. The scheduled commitment in respect of this post is as follows:-
   **Mater Misericordiae University Hospital - 39 hours**
11. Remuneration shall be at **Type B** level in accordance with the terms and conditions of the Consultant Contract 2008.
12. **Garda Clearance** – Arrangements have been introduced on a national level, for the provision of Garda Clearance in respect of candidates for employment in areas of Health Services where it is envisaged that potential employees have substantial access to children or vulnerable individuals.

**Note:** The extent and speed of change in the delivery of health care is such that adaptability is essential at this level of management. The incumbent will be required to maintain, enhance and develop their professional knowledge, skills and aptitudes necessary to respond to a changing situation. The Job Description must be regarded as an outline of the major areas of accountability at the present time, which will be reviewed and assessed on an on-going basis.