

Senior Training Fellowship

1. Name: Dr. Joy Sarojini Michael
2. Department: Microbiology
3. Year of STF: 2016-2017 (March 27th – May 20th 2017)
4. Objectives stated in the application for STF:
 1. Improving diagnostics in the Department of Microbiology in the field of Mycobacteriology and Mycology
 2. Update Infection Control practices at CMC Vellore
5. Center visited for STF & Mentor :
 1. Public Health England National Mycology Reference Laboratory Bristol, United Kingdom- Dr. Elizabeth Johnson & Dr. Nandini Shetty-
 2. Mycology Reference laboratory at Cardiff, United Kingdom- Dr. Lewis White-
 3. Public Health England, National Mycobacterium Reference laboratory & Regional centre for Mycobacteriology for South and South east England at Colindale , London
 4. Infection Control and Antimicrobial Stewardship at TUFTS Medical Centre, Boston , United States of America- Dr. David Snyderman & Dr. Honorine Ward
 5. Infection Control & Antimicrobial Stewardship collaborative project discussion at Centre for Disease Control, Atlanta, United States of America
6. Short description of training:

Training at the Reference Laboratories in United Kingdom :

I visited **2 Mycology reference laboratories in Mycology** at Bristol and Cardiff in UK. Being a **Public Health England Reference Laboratory at Bristol**- they receive a lot of clinical samples and isolates from different parts of UK . I spend a week observing all the tests they perform in their laboratory and learnt new methodologies and learnt to trouble shoot for tests that were being done at our laboratory at CMC Vellore. They perform conventional microscopy and culture of all clinical samples as well as serological tests such Galactomannan Aspergillus antigen detection ELISA , IgG and IgA antibody

detection ELISA for Aspergillosis and Candidiasis and 1,3 Beta D glucan testing for fungal diagnosis. In addition to this they also use MALDI TOF and molecular tests for fungal identification.

At Cardiff , I visited the Mycology reference Mycology laboratory for Wales for a week. This laboratory in addition to conventional tests specialize in Molecular diagnostics from clinical specimens for Invasive Aspergillosis, Invasive Candidiasis and Pneumocystis jiroveci infections. I observed various in-house real time PCRs standardized by them and other Commercial Molecular assays they were evaluating for accurate identification of the pathogens as well as their resistance.

I spent the last 2 weeks in UK at the **National Mycobacterium Reference laboratory for South and South East England at Colindale, London.** Here I observed all the routine tests they perform for Microscopy , Culture and DST for both M.tuberculosis as well as for Non tuberculosis Mycobacteria (NTM). They use Xpert MTB/Rif assay as well as Line probe assay for rapid diagnosis of MTB and its resistance. The use Line Probe assay for identification of NTM . I also observed the VNTR typing of M.tuberculosis but they have slowly started phasing out the test and have started using Whole Genome sequencing for identification, resistance detection and molecular typing for M.tuberculosis. I couldn't observe this fully as the main sequencing and analysis is being currently done at the Mycobacterium Reference laboratory a Birmingham.

Training in Infection Control in USA

I visited **the TUFTS Medical Centre at Boston** and joined the Antimicrobial Stewardship and Infection Control team lead by Dr. David Snyderham and Dr. Shira for 2 weeks. I shadowed them and took part in all their activities and meetings. I interacted with their Clinical Pharmacist Mrs. Kirthana and the Infection control Nurses. I updated my knowledge on the following areas

- Audits on Hand hygiene
- Methods to improve compliance of Hand hygiene
- Antimicrobial stewardship enhanced with IT support
- The Role of Clinical Pharmacists
- Microbiology , ID and Infection control team meetings- “Microbiology Huddle”
- Improved leadership role of the Infection control team
- Infection Control Meetings and the role of support staff

I spent the rest of my STF period with **the CDC Atlanta group** on discussions on the CDC ICMR collaborative project that CMC Vellore is working on . We had brain storming meetings on the following

- Infection control training of Nurses at CMC Vellore, for the District Health Centres at Kanchipuram, Theni and Coimbatore
- Infection Control training of Public health Doctors Dr. Mohan and Dr. Valan in the same at CMC Vellore
- Role of CMC in Monitoring the Infection Control Practices at these centres
- Role of CDC and Public Health Foundation of India in working with CMC Vellore to improve infection control at the govt hospitals
- Pan India Surveillance of Hospital Infection Surveillance Challenges
- Role of CMC Vellore in capacity building of govt labs to help in AMR surveillance
- Challenges faced in India to improve Infection control Practices at health care settings

7. Plans to implement objectives on return to CMC:

Mycology:

1. To introduce new molecular methods for diagnosis of Invasive fungal infections and *Pneumocystis jiroveci* in collaboration with the Mycology group at Cardiff
2. Fine tune serological methods for diagnosis of Invasive fungal Infections
3. Standardize and start using MALDI TOF for speciation of *Candida* for routine diagnosis
4. Evaluate the use of 1,3 Beta D Glucan test for routine diagnostics
5. Collaborate with Mycology Reference laboratory at Cardiff - Dr. Lewis White - in the field of Molecular methods for diagnosis of Invasive fungal infections

Mycobacteriology:

1. Introduce the minimum inhibitory concentration method of drug susceptibility testing for Non tuberculosis Mycobacteria
2. Standardize and start using MALDI TOF for the speciation of Non tuberculosis Mycobacteria
3. Establish the molecular as well as bioinformatics infrastructure to standardize whole genome sequencing of *Mycobacterium tuberculosis*

Infection Control:

1. To establish software to enable Antimicrobial stewardship- similar to Surveillance of HAI
2. To modify and improve the Hand Hygiene and Infection Control audit of various wards
3. Train Clinical Pharmacist in the area of Antimicrobial Stewardship
4. Establish collaborative projects between TUFTS Medical centre and CMC Vellore in the area of Antimicrobial Stewardship and Infection Control .
5. Train Govt doctors and Nurses in the field of Infection Control for Public health Initiative of ICMR and CDC in India

26.06.2017

Joy S Michael

Date:

Signature