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| **Stages of training and curriculum competencies** | **Learning Objectives** | **Learning outcome** | **Hospitals able to cover the relevant competencies for each year** |
| **YEAR 1 (ST3)*****Laboratory competencies***Formal introduction to the basic principles of chemical pathology. Following the induction period, the trainee will receive instruction and practical experience in further aspects of chemical pathology ***Clinical competencies***Lipid managementHypertension Diabetes MellitusNutrition***Teaching******This stage of training will be formally assessed end of year ARCP***  | * Understanding the pre-analytical and analytical laboratory principles, to start to gain experience in reviewing IQC\EQA.
* Develop hands on supervised basic laboratory skills e.g. pipetting
* Understanding the lipid management, managing patients with bone metabolic disorders, managing patients on Diabetes clinic, Manage patients on parenteral nutrition support

Exposure to department teaching sessions (e.g. case presentation)  | Improving theoretical knowledge of laboratory principlesShadow the laboratory duty biochemist, and work towards independent DB role* Lipid disorders
* Hypertension
* Bone metabolic clinics
* Diabetes
* Nutrition clinic and MDTs
 | **It is advised that year 1 is based at a large teaching hospital.**1. **Liverpool University Hospitals NHS Foundation Trust (LUHFT)**
2. **Manchester Royal Infirmary (MRI)**
3. **Wythenshawe Hospital**

Salford Royal should be the training site for year 2/3 due to metabolic service component.**ADDITIONAL TRAINING:** Trainees are strongly encouraged to attend teaching for the analytical module in Manchester University**Core clinics offered for year 1:**1. **LUHFT**

Best for: Lipid, Bone1. **MRI**

Lipid , Bone, Diabetes, Nutrition, Hypertension 1. **Wythenshawe**

Lipid, Diabetes, Nutrition1. **Salford:**

Lipid, Nutrition |
| **YEAR 2 (ST4)*****Laboratory competencies***The trainee will obtain a good general knowledge and understanding of most principles and practices under indirect supervision. They should be able to deal with most of the day-to-day issues in a hospital chemical pathology laboratory to an adequate level but will still require consultant input regarding complex management and clinical issues. The trainees will continue to broaden their experience and understanding of chemical pathology.Validation and verification experienced.***Clinical competencies***Lipid managementBone metabolic disordersNutrition disordersObesityDiabetes mellitusEndocrine***Teaching*** ***The knowledge gained during this stage of training will be assessed by the FRCPath Part 1 examination.*** | Further experience in laboratory techniques and interpretation of results in relation to diseases and organ systemsLaboratory rotations to have practical experience, reporting including core, endocrine and specialists tests.To be able to deal with laboratory issues and make clinical decisions independently.*Supervised V and V activity to enable trainees to meet the mandatory DOPS required.*Continuing with improving understanding on lipid, bone metabolism, nutritionAttending obesity, diabetes clinics and Endocrine clinicsRegional TeachingUndergraduates and IMT teachingUndergrad CCA(OSCE) examinationsParticipate in Audits and Journal clubs.Conference attendance is encouraged (e.g. UKMedLab and HEART UK), including the submission of abstracts  | Rotations in different sections of laboratory to cover key mandated DOPs.Laboratory reporting* Lipid disorders
* Bone metabolic disorders
* Nutrition ward round
* Obesity clinic
* Diabetes clinic
* Endocrine
* Hypertension clinics

Occasional attendance in other clinic/ward rounds in other disciplines as determined by educational supervisorTaking turn in the role of regular organising of Regional TeachingParticipate in Trust teaching opportunities.To take CCA examiner course followed by participation in undergraduate Exams. | **All training sites.**Some assays are unique to specific sites and trainees advised to prioritise attending these assays whilst at the corresponding site e.g; * Porphyrin analysis: Salford
* Alkaptonuria: LUHFT
* Toxicology (Mass spectrometry): Salford
* Newborn Screening: RMCH

**Full list of clinics offered:**1. **LUHFT**

Lipid, Bone, Hypertension, Diabetes, renal stone, weight management 1. **MRI:**

Lipid, Bone, Diabetes, Nutrition, Hypertension1. **Wythenshawe**

Lipid, Diabetes, Nutrition1. **Bolton**:

Lipid, weight management, endocrine1. **Salford**:

Lipid, Nutrition, Porphyria, IMD |
| **YEAR 3 (ST5)**Trainee to undertake further specialised general chemical pathology /metabolic medicine training. ***Laboratory competencies***Deep understanding of analytical principles, research project, critical appraisal, data analysis***Management competencies******Teaching*****Research Project*****Clinical competencies***Lipid or cardiovascular risk managementAdult inherited metabolic disordersRenal stoneSpecialist Diabetes clinics***Start to prepare for FRCpath Part 2 examinations*** | To develop understanding of paediatric biochemistry and management of inborn errors of metabolic disordersAttending the laboratory meetings including operational, quality assurance, clinical governance, risk managementAttending the management coursesHealth and safety experienceConference attendance is encouraged (e.g. UKMedLab and HEART UK), including the submission of abstractsProjects are now not mandatory for CCT ,however trainees are encouraged to participate in projects in the Lab as part of service improvement and to gain deep lab experience.Continue improving lipid management.Managing patients with inborn metabolic disorders | **Paediatric Biochemistry:**Paediatric Gastroenterology Ward Rounds and Intestinal Failure MDT and clinics. New Born Screening experience ,IMD clinics +/- Transition clinics. (6 months)Adult IMDSalford is for Adult Intestinal Failure experience.Independent Laboratory reportingAttending the laboratory quality, clinical governance and operational meetingsFurther V and V experience By the end of year 3, trainees need to have attended the following additional teaching sessions designed to ensure full syllabus coverage:1. **Cancer teaching session** organised by The Christie Hospital team (organised by Sally Thirkettle)
2. **Genetics for Chemical Pathologists, including genetic counselling** (organised by Dr Catherine Breen)

To do a small management project under the guidance of educational supervisor eg; Business case Lipid disordersRenal stone metabolic clinicsSpecialist Diabetes clinicsIn addition to clinics that were not covered in previous rotations | **Training sites:**1. **Salford Royal Hospital (Adult metabolic clinic)**

Please note Salford Inherited Metabolic rotation is recommended for trainees with at least 18 months training experience .When attending Salford Metabolic Clinics, expect to observe the majority of patients (i.e. consultant-led), with selected patients being seen independently followed by consultant discussion. This will depend partly on OPD room availability.1. **RLUH (Alkaptonuria)**
2. **RMCH (Paediatrics)**

Paediatric gastro(intestinal failure) clinic. Paediatric IMD clinic. All clinics are shadowing. Paediatric DB. Expectation for trainees to do weekly adult lipid clinic. ***All training sites***Renal stone clinics available in Salford and Royal Liverpool sitesAttendance at a course on Inherited Metabolic Disease held every 2 years on the Oxford Road  |
| **YEAR 4 (ST6) / YEAR 5 (ST7)**The trainee to acquire in-depth knowledge and understanding of the principles of chemical pathology/metabolic medicine. They should be competent to discuss and deal with the subject (or, where appropriate, perform the task/procedure), demonstrating a level of clinical or professional judgement commensurate with independent professional practice at consultant levelManagement Experience Leadership ExperienceTeaching ExperienceBy the end of Year 5, the trainee should be able to demonstrate a level of knowledge and skill indicating suitability for independent professional practice in chemical pathology. This stage of the curriculum prepares the trainee for their consultant post | It is anticipated that a trainee at this level should have regular consultant support and supervision to guide the final stages of development and boster management skills not covered by examinationsTo work to develop Local guidelines within the trustTo take turn in the role of NW Trainee representative for one year alternating with other colleagues in order of seniorityEncouraged to do Post graduate certificate in medical education.Conference attendance is encouraged (e.g. UKMedLab and HEART UK), including the submission of abstractsThe ARCP undertaken towards the end of year 4 should identify goals for the trainee to achieve during their final year of training.To develop an expertise in one aspect of speciality | To develop an expertise in clinical area of choice/management/teaching |  |

* Training to be completed within five years of ST3 for Chem Path (Metabolic Medicine)
* ARCP at the end of each year of training, WPBA minimum 6 of each in each year of training
* Training to be completed within five and a half years of joining ST3 for Chem Path/Metabolic Medicine
* ARCP at the end of each year of training

**EXAMPLE (FULL-TIME) TRAINING MAP**

Please note the order and duration of rotations will depend upon the number of trainees and collective stages of training.

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| **Year of training** | **Training site and duration**  |
| **YEAR 1 (ST3)** | Royal Liverpool Hospital (12 months) |
| **YEAR 2 (ST4)** | Manchester Children’s Hospital (6 months)Salford Royal (6 months) |
| **YEAR 3 (ST5)** | Wythenshawe Hospital (12 months) |
| **YEAR 4 (ST6)** | Manchester Royal Infirmary (12 months) |
| **YEAR 5 (ST7)** | DGH: Bolton (12 months) |