East Lancashire Hospitals NHS Trust

Trainee Biomedical Scientist

3 / 4 week placement

Cellular Pathology

Training plan & manual

Name:

Date:

Mentor:

Contents

Introduction

Welcome to your first work placement and welcome to East Lancashire Hospitals. During your placement you will be required to abide by trust rules and work with your training officers, mentors and colleagues within the laboratory.

The aim of the placement is for you to experience and develop practical proficiency in biomedical science practices. The aim of the portfolio is to evidence this practical proficiency using as many examples of practice you have completed. There will be a need for case studies and answered questions as part of your portfolio submission but this must not be at the detriment of practical hands on skills. Any future employer in the end needs to know you have the practical skills to do the job, not that your portfolio is a perfectly word processed document.

Dress code – smart attire, no jeans, flat shoes with non slip soles.

We aim to offer you an interesting, challenging and overall satisfying introduction to a career in biomedical Sciences

The learning outcomes from the placement are as follows

	Learning outcomes	**HCPC standard reference**
a	To be aware of the professional boundaries of biomedical science	1.1, 2.1, 2.5, 2.2, 2.6, 2.8, 3.1, 3.2, 4.4
b	To be aware of the roles principles and practices of laboratory biomedical sciences.	
c	To work and communicate within a team without prejudice or favour, maintaining confidentiality.	2.3, 5.1, 8.3, 8.6
d	To consider the impact of their activities and practice, considering ways (reflecting) of doing them better/differently/more efficiently.	11.1
e	To recognise reagents/practices in terms of safety and abide by protocols.	15.2, 15.4
f	To be able to construct a professional portfolio	1.2, 2.2, 10.1
g	To maintain confidentiality verbally and also of records whether paper or electronic	2.3, 5.1, 8.3, 8.6

Links

http://www.hpc-uk.org/assets/documents/100004FDStandards_of_Proficiency_Biomedical_Scientists.pdf

Work plan

Week	Activity	Key learning points	Key HCPC SoP links	Key histology concepts	Further reading
1	Specimen reception (If following a 3 week plan = 4 days)	• Specimen reception • Receiving specimens • Audit trails • Use of Telepath • Range of specimens received • Clinical information provided	6 – practise in a non-discriminatory manner 7 – understand the importance of and be able to maintain confidentiality 1.2 – recognise the need for effective self-management of workload 9.1 – be able to work in partnership with other professional groups 8 – demonstrate effective communication skills 10 – be able to maintain records accurately 15 – understand the need to maintain a safe working practice	• Patient identifiers • Minimum specimen requirements • Fixation • High-risk specimens	Orchard & Nation, Histopathology Chapter 1 Wheater functional histology – 5th Edition Chapters 1 & 2
2	Assist with BMS cut up / observe BMS / consultant cut up (If following a 3 week plan = 4 days)	• Specimen dissection skills • Use of cassette printer • Use of digital dictation	14.2 – be able to conduct appropriate diagnostic procedures 15 – understand the need to maintain a safe working practice	• Specimen description and handling • Fixation • Specimen archiving	Wheater functional histology – 5th Edition Chapters 3 & 4

Week	Activity	Key learning points	Key HCPC SoP links	Key histology concepts	Further reading
3	Basic laboratory histopathology (If following a 3 week plan = 4 days)	• Assist with microtomy • Basic specimen identification and embedding	14.2 – be able to conduct appropriate diagnostic procedures 15 – understand the need to maintain a safe working practice	• Microtomy • Embedding • The need for levels on biopsy cases	Wheater functional histology – 5th Edition Chapters 5 & 6 Orchard & Nation Chapter 3
4	Advanced staining in histopathology (If following a 3 week plan = 3 days)	• Understand the need for extra requests • Basic concepts in immunocytochemistry • Basic concepts in special stains	14.2 – be able to conduct appropriate diagnostic procedures 15 – understand the need to maintain a safe working practice	• Special stains • Immunocytochemistry • Clinical indicators for extra tests • Specimen handling for extra tests	Wheater functional histology – 5th Edition Chapter 7 Orchard & Nation Histopathology Chapter 2,4, 5 & 6

Key Staff

Staff member	Role	
Dr. Kathryn Brownbill	Clinical Director, CLM	
Dr. Ruth White	Clinical Lead, Microbiology	
Dr. Jagdesh Ayodi	Clinical Lead, Haematology	
Dr. Santhi Kumar	Clinical Lead, Cellular Pathology	
Dayle Squires	Directorate Manager, CLM	
Diane Giles	Biochemistry Manager	
Chris Flynn	Biochemistry Manager	
Stephen Rigby	Haematology Manager	
Pamela Henderson	Microbiology Manager	
Craig Rogers	Cellular Pathology Manager	
Kathleen Wilkie	Quality & Training Manager	
Howard Briggs	IT Manager	

Laboratory Induction

Biomedical Scientist supervisor

Topic	Induction delivered by	Date	Induction acknowledged by
Tour of workplace - Lab - Cut up room - Offices			
Dining/break facilities - Tea room - WH Smith - Costa - Canteen			
Toilet facilities			
Alarm procedures Fire drill (meet on the car park)			
Work timings			
Annual and study leave arrangements			
Use of computer system Telepath access			
Health and safety in the workplace - Lab coats - Gloves - Biological hazards - Formalin hazards - Handwashing - Chewing - Mobile phones - Footwear - Hair - Chair ergonomics - Visual display units - Upper limb related disorder			
Waste streams - Clinical waste - Anatomical waste			

Topic	Induction delivered by	Date	Induction acknowledged by
- Domestic waste - Xylene waste - Alcohol waste - Cytolyt waste - Preservcyt waste - Chemical waste			
Lab tidiness			
Confidentiality of information - Data - Photographs			
Telephone procedures			
Security			

Corporate induction requirements

Biomedical Scientist supervisor

Induction topic	Date booked	Date attended	Countersigned (Training officer)	Notes
Trust induction				
Core Mandatory training				
Safeguarding children (Level 1)				
Information governance				
Safer handling theory				
Safer handling practical				
Conflict resolution				
Equality and diversity				
Information governance				
Prevent				

Links

http://oli.xelht.nhs.uk/sorce/apps/picture_lib_app/asp/gen_table_video_grid.aspx?inc_archived=0&maxcols=5&search_criteria=&category1=4&category2=NULL&category3=NULL&category4=NULL

https://www.igte-learning.connectingforhealth.nhs.uk/igte

Tutorial plan

Tutorial plan to be delivered across the first 10 weeks of the placement

Week	Date	Topic	Lead
1		Induction	
2		Introduction to placement	
3		Portfolio of Professional Practice	
5		Equality & Diversity	
7		Health & Safety	
9		Working within Professional Boundaries	

Practical skills and knowledge

Week 1 – Specimen reception

Biomedical Scientist supervisor

Skill / task	Observed (Signature / date)	Done with direct supervision (Signature / Date)	Done with remote supervision (Signature / Date)	Student comments	Countersigned trainer
Received specimens from theatres and signed the theatre book to acknowledge receipt					
Can mix biopsy specimens up at labelling up to ensure a range of samples are numbered sequentially					
Labelled up specimens separating samples of the same type					
Ensure similar patient names are not placed together					
Can ensure frozen section samples are handled urgently and appropriately					
Can handle IMF specimens appropriately					
Can handle gynae cytology specimens appropriately					
Can book specimens in to Telepath					

Can scan specimen cards using the card scanner					

Week 1 - Questions

1. Describe the key functions of the Cellular pathology laboratory
2. Describe the different types of specimens received
3. Why are clinical details important?
4. What is the role of a fixative?
5. Why are barcodes helpful in cellular pathology
6. How many identifiers are required to accept a specimen? Why?
7. When and why are specimens rejected?
8. Why are the same specimen types kept separately
9. Why is it important to ensure accurate patient information?
10. What are the potential problems when a specimen is mixed up?

Audit activities

1. Review the request forms received – what types of samples are received. Construct a table showing the different types of specimen types for a given day
2. Review the request forms received – make a table showing the various locations specimens are received from over a few days.
3. Review the clinical details on the request forms received. Construct a table explaining the clinical details for a range of specimens received
4. Review the specimens rejected by the laboratory. Make short notes on the reason for their rejection.

Suggested activities / evidence

Witness statements

Observations of practice

Short notes on why a named case has been rejected

Feedback What went well? What could be improved on for future
Reflection

Week 2 – Cut up room

Biomedical Scientist supervisor

Skill / task	Observed (Signature / date)	Done with direct supervision (Signature / Date)	Done with remote supervision (Signature / Date)	Student comments	Countersigned trainer
Can identify the appropriate cassette colour for a range of specimens					
Can use nice label to print cassettes from barcodes					
Can set up the cut up bench for BMS cut up					
Can assist with BMS cut up					
Can photograph cassettes as part of the specimen audit trail and annotate and indicate which processor is used					
Can use macropath for photography of specimens					
Can assist with loading blocks on to the tissue processors					
Can assist with specimen bagging					
Can assist with anatomical and clinical waste discard					

Week 2 - Questions

1. Why are specimens described as they are dissected?
2. Why are biopsy sponges used?
3. Why are cassettes photographed prior to processing?
4. Why does the dissection board need to be free of debris during cut up?
5. What are the potential errors associated with patient specimens becoming mixed up?
6. How long are specimens retained for? Why?
7. How are specimens stored?
8. Why are specimen pots retained even when all material is processed?
9. What are RCPath points?
10. Why is it important to check the specimen pot and the

Audit activities

1. Audit the time it takes to dissect the large specimens in cut up, construct a table to show your findings
2.

Suggested activities / evidence

Witness statements

Observations of practice

Short notes on case which you have seen dissected

Short notes discussing the various merits of different processing schedules

Brief notes describing the various chemical hazards faced in the safety data sheets

Feedback What went well? What could be improved on for future
Reflection

Week 3 – Main lab

Biomedical Scientist supervisor

Skill / task	Observed (Signature / date)	Done with direct supervision (Signature / Date)	Done with remote supervision (Signature / Date)	Student comments	Countersigned trainer
Can float out sections at microtomy, placing the section in the centre of the unfrosted slide					
Whilst floating out can check sections for creases / carryover					
Whilst floating out can check sections for appropriate depth and inclusion of relevant elements					
Can keep waterbath free of debris					
Can embed large flat pieces of tissue (i.e. specimens which do not need orientating)					
Can hand stain a H&E slide					
Can hand coverslip a slide					
Can load a control slide onto the automated stainer					
Has seen a section of skin					

Skill / task	Observed (Signature / date)	Done with direct supervision (Signature / Date)	Done with remote supervision (Signature / Date)	Student comments	Countersigned trainer
under the microscope					
Has discussed routine H&E QC with training officer					
Has assisted in slide stainer reagent maintenance					
Can updated reagent change logs on checklists					

Questions

1. Why are specimens cut and mounted on microscope slides?
2. Why are most sections cut at 4µm?
3. Why is it important that the waterbath is kept free of debris
4. Why does the section need to be placed on the slide in a standard way?
5. Why is haematoxylin and eosin used as the primary stain in histology?
6. Why is quality control important when sending slides to the pathologist?
7. Why is it important to wipe forceps between embedding individual blocks and keep the embedding station tidy?

Audit activities

1. Audit the time it takes to embed a rack of blocks
2. Audit the time it takes to cut 30 blocks, note whether the blocks are routine, extras or level blocks
3. Audit the time it takes to stain and check out a rack of slides
4. Audit the type of specimens which get re-embedded
5. Audit the types of specimen which get re-processed
6. Audit the reasons that blocks get re-cut for QC purposes

Suggested activities / evidence

Witness statements

Observations of practice

Feedback What went well? What could be improved on for future
Reflection

Week 4 – Advanced staining

Biomedical Scientist supervisor

Skill / task	Observed (Signature / date)	Done with direct supervision (Signature / Date)	Done with remote supervision (Signature / Date)	Student comments	Countersigned trainer
Can check the extra work e-mail list for new requests					
Can collect tissue blocks from the file following an extra work request					
Can float out tissue sections for immunocytochemistry					
Can make up bulk reagents for immunocytochemistry					
Can tare a balance prior to pipette QC checks					
Can accurately pipette out 1ml of water using the automated pipettes					
Can follow SOP to hand stain a ZN control slide					
Can follow SOP to hand stain a AB slide					
Can follow SOP to hand stain a HVG slide					
Can load slides onto the automated immune stainer					
Can print bar code labels for the immune stainer					

Questions

1. Why is the accuracy of pipettes checked periodically? How is this done?
2. Why are balances tared?
3. Why are supplementary tests so important in cellular pathology?
4. What are the basic principles of immunocytochemistry?
5. What pre-treatments are done to slides before staining with immunocytochemistry?
6. What coating is used on superfrost plus slides? Why is this important?
7. Why are control slides so important for immunocytochemistry?

Audit activities

1. Audit the most commonly requested additional tests
2. Audit the different types of specimens which need additional work

Suggested evidence

Copy of pipette calibration logs that you have done

Feedback What went well? What could be improved on for future
Reflection

Attendance sheet

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Countersigned (Training officer)
1						
2						
3						
4						

In the event of sickness / absence you need to ring 01254 733103 to speak to Kathleen Wilkie before 9:30am, if she is not available ring 01254 735147

Appendix 1 – Portfolio assessment indicators – UCLan students only

	First	Upper second	Lower second	Third	Fail
Knowledge of techniques	Excellent evidence of knowledge of the range and repertoire of techniques including all departments	Very good evidence of knowledge of the range and repertoire of techniques including all departments	Good evidence of knowledge of the range and repertoire of techniques in own department but limited in other areas	Basic level of evidence of knowledge of the range and repertoire of techniques in own department only	Little or no evidence of knowledge of the range and repertoire of techniques
Application of techniques	Excellent understanding of the application of tests to patient diagnostic pathway	Very good understanding of the application of tests to patient diagnostic pathway	Some understanding of the application of tests to patient diagnostic pathway	Basic understanding of the application of tests to patient diagnostic pathway	Little or no understanding of the application of tests to patient diagnostic pathway
Understanding of role of pathology in the organisation and patient care	Excellent level of engagement and communication with other departments and service users	Very good level of engagement and communication with other departments and service users	Good level of engagement and communication with other departments and service users	Limited level of engagement and communication with other departments and service users	No level of engagement and communication with other departments and service users
Knowledge of standards of proficiency, conduct, performance and ethics	Excellent knowledge of professional bodies, standards and legislation. Excellent knowledge of the application of the role of the Biomedical Scientist within the trust.	Very good knowledge of professional bodies, standards and legislation. Very good knowledge of the application of the role of the Biomedical Scientist within the trust.	Good knowledge of professional bodies, standards and legislation. Good knowledge of the application of the role of the Biomedical Scientist within the trust.	Limited knowledge of professional bodies, standards and legislation. Limited or no knowledge of the application of the role of the Biomedical Scientist within the trust.	No knowledge of professional bodies, standards and legislation. No knowledge of the application of the role of the Biomedical Scientist within the trust.
Range and quality of	Wide range of evidences	Wide range of evidences	Good range of evidences	Limited range of evidences	Limited range of evidences

	First	Upper second	Lower second	Third	Fail
evidence collected	throughout portfolio of excellent quality. Evidences are well-annotated and justified	throughout portfolio of very good quality. Evidences are reasonably annotated and justified	throughout portfolio of good quality. Some evidence of annotation and justification	throughout portfolio of adequate quality. Little evidence of annotation and justification	throughout portfolio of poor quality. Little or no evidence of annotation and justification
Presentation of evidence	Excellent indexing and linking of standards to evidence. Legible and clear annotations. Diagrams and figures are clearly labelled. All evidence is signed and dated. There is excellent evidence of feedback and correction	Very good indexing and linking of standards to evidence. Legible and clear annotations. Diagrams and figures are clearly labelled. All evidence is signed and dated. There is some evidence of feedback and correction	Adequate level of indexing and linking of standards to evidence. The evidence is mostly legible and some annotations are used.	Poor level of indexing and linking of standards to evidence. There is a significant amount of illegible material. Annotations are rarely used	The is no level of indexing and linking of standards to evidence. There are no annotations used throughout the portfolio.
Evidence of reflection and progression	Excellent evidence of reflection and engagement in reflective practice. There is evidence the student has revisited their work and improved upon it.	Very good evidence of reflection and engagement in reflective practice. There is evidence the student has revisited their work and improved upon it.	Good evidence of reflection and engagement in reflective practice. There is limited or no evidence the student has revisited their work and improved upon it.	Limited evidence of reflection and engagement in reflective practice. There is no evidence the student has revisited their work and improved upon it.	No evidence of reflection and engagement in reflective practice. There is no evidence the student has revisited their work and improved upon it.