7. Post-Part 1 CMSA examinations

Number: ……..

Name of rotation: Post-primaries

Period: 01-02-2020 to 31-05-2020

Learning objectives

- Become competent in common manual assays performed in our laboratory.
- Gain a better understanding of laboratory management.
- Gain a deeper understanding of the role of the pathologist specifically in the lab

Reflection on completion of rotation.

What has been learnt?

- Learning is an ongoing process that requires repetition and revision
- Having a good grounding in the basic sciences is essential
- There is too much content to memorise, it is best to understand principles
- The pathologist serves as a knowledgeable middle-man. The pathologist forms a link between persons thus requires flexibility in their way of thinking.

Learning weaknesses still needing attention

- Good organizational skills
- Self-motivation and self-accountability need to be improved
- The role of the pathologist in management
- Risk management

- How to interpret and manipulate data

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6. Preparing for Part 1 CMSA examinations

Number:

Name of rotation: Preparing for primaries

Period: 01-03-2019 to 29-02-2020

Learning objectives

- Gain a good foundation in the basics of analytical chemistry.
- Gain more exposure to quality control (both internal and external)
- Become comfortable/familiar with laboratory calculations.
- Improve interpretive skills of investigations such as electrophoresis.
- Learn how to confidently investigate queries.

Reflection on completion of rotation.

What has been learnt?

- I gained a better understanding of the function and role of a pathologist.
- There are many opportunities in and around the lab for

learning.

- The vastness of the topics covered in Chemical Pathology means that teaching and learning can occur in non-conventional places, e.g. Pharmacology Lab.
- While it is important to keep up to date with esoteric and strange cases, it is important to focus on fundamental topics.
- Reading something in theory but having no practical experience makes it difficult to understand conceptually.
- The value of literature in answering queries and formulating research ideas.

Learning weaknesses still needing attention

- A better and deeper understanding of management.
- Practical experience in Molecular medicine.
- Deeper understanding of methodology.
- Practical application and practice of laboratory calculations.
- Learning how to read and appraise scientific journal articles.
- Ability to engage in departmental discussions and case topics.

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5. APT Test

Number: **……..**

Name of rotation: APT test

Period: 13 September 2019

Learning objectives

- Perform the APT test.

Reflection on completion of rotation.

What has been learnt?

- A SOP document can help to perform an assay when someone with experience of the assay is absent.
- Chemistry is involved in many disciplines and inter-disciplinary approach is often needed.
- Sometimes an SOP requires revision to clarify any misunderstandings and keep it up to date.

Learning weaknesses still needing attention

- Attention to detail, especially when following an assay.

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4. MMed Attempt: Take 1 (CF, Macroduct)

Number: **……..**

Name of rotation: Cystic Fibrosis Mmed (attempt 1)

Period: 01-02-2019 to 31-10-2019

Learning objectives

- How to write a protocol.
- How to conduct a literature review.
- How to analyze data generated during scientific study.

Reflection on completion of rotation.

What has been learnt?

- Scientific writing is challenging.
- The importance of keeping both yourself and you supervisors accountable.
- Postgraduate studies are largely self-driven.
- Cultural and racial differences may impact interactions and expectations in a way that may not be obviously apparent.
- The importance of having a good, solid project to work on.
- Inter-disciplinary studies offer unique challenges but also wonderful opportunities.

Learning weaknesses still needing attention

- Clear and definitive aims and objectives.
- Realistic timeline.
- Selection of supervisor in which easier in-person discussion can be had (i.e. working in the same hospital).

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3. PathRed 2019

Number: ……..

Name of rotation: PathRed Congress

Period: 18 – 21 July 2019

Learning objectives

- How to write an abstract.
- How to write a poster.

Reflection on completion of rotation.

What has been learnt?

- Congresses are a wonderful way to network.
- Congresses and seminars are a good way to keep up to date with what is currently happening in the field.
- Putting together a poster for presentation takes more time and effort than what I initially thought.
- The importance of collaboration and working alongside senior colleagues.
- Brevity is the soul of wit.

Learning weaknesses still needing attention

- The art of scientific writing.
- How to network.
- Confidence in sharing my work and findings .

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2. RXH rotation 1.0

Number: ……

Name of rotation: Red Cross War Memorial Children's Hospital

Period: 01-12-2018 to 28-02-2019 (6 weeks)

Learning objectives

- Familiarity with manual bench assays
- Becoming a functional member of the Chemical Pathology Department.
- Understanding overtime duties in the laboratory and expectations of registrars on a day-to-day basis.
- Interpretation and evaluation of investigations such as electrophoresis.

Reflection on completion of rotation.

What has been learnt?

- The laboratory is a well organised structure that functions with a standard operating procedure to guide the laboratory personnel.
- The importance of having good laboratory practise.
- The methods employed to diagnose biochemical derangement can be simple such as running a TLC plate or require sophisticated equipment such as a GC-MS.
- The requirements of a small laboratory as compared to a large volume laboratory
- The importance of forming and maintaining a good relationship with lab personnel.
- The great responsibility that comes with the permissions that registrars have. This is with regards to access to patient information and the ability to alter the final results that clinicians have access to.

What remains to be learnt?

- I still have to learn different techniques of performing investigations (e.g. chromatography vs spectrophotometry).
- Types of interferences and how this can affect analytes and thus the results.
- Becoming comfortable with interpretation of electrophoretic gels.
- Bridging the gap between clinicians and laboratory staff, seeking to encourage a relationship between the two.
- Obtaining a true grasp of what a Chemical Pathologist is and the functions that they perform.

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1. Orientation

RECORD OF ROTATIONS/ATTACHMENTS

Number: ……

Name of rotation: Orientation

Period: 01-07-2018 to 12-08-2018 (6 weeks)

Learning objectives

- Familiarity with the laboratory organogram.
- Becoming a functional member of the Chemical Pathology Department.
- Understanding overtime duties in the laboratory and expectations of registrars on a day-to-day basis.
- Interpretation and evaluation of investigations such as

electrophoresis.

Reflection on completion of rotation.

What has been learnt?

- The laboratory is a well organised structure that functions with a standard operating procedure to guide the laboratory personnel.
- The ability to audit results from samples submitted to the laboratory for testing (authorisation of results).
- The methods in place to attempt to avoid error and salvage a sample as much as possible
- The importance of having a good understanding of the fundamentals to set a good foundation for the remainder of the training programme
- The importance of forming and maintaining a good relationship with lab personnel.
- The great responsibility that comes with the permissions that registrars have. This is with regards to access to patient information and the ability to alter the final results that clinicians have access to.

What remains to be learnt?

- I still have to learn different techniques of performing investigations (e.g. chromatography vs spectrophotometry).
- Types of interferences and how this can affect analytes and thus the results.
- Becoming comfortable with interpretation of electrophoretic gels.
- Bridging the gap between clinicians and laboratory staff, seeking to encourage a relationship between the two.
- Obtaining a true grasp of what a Chemical Pathologist is and the functions that they perform.

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1. CA 19-9

Ward	Surgical OPD
D.O.B/Age	03/06/1936

Lipase **9640** U/L 13 – 60 (Result checked/analysed in dilution)

Hepatic enzymes suggestive of a mixed picture.

Request form: Jaundice ?NBL

Unable to obtain history. Questions to consider:

Presenting complaint: Weight loss, jaundice, yellowing of the sclera and/or skin, pruritis, vomiting, change in the colour of stool and/or urine, early satiety, epigastric fullness.

Past medical history: Any chronic illnesses e.g. diabetes, hypertension, epilepsy, HIV etc

Family history: especially GI malignancy.**Social history:** Diet, smoking, alcohol consumption, illicit drug use.

Vital signs: assess haemodynamic status

Gen: jaundice, scratch marks, any signs of wasting, mental status, pallor, oedema, clubbing, lymphadenopathy, fetor hepaticus

Abdo: signs of liver disease (spider naevi, caput medusa, ascites), hepatomegaly or cirrhosis, epigastric fullness, hepatic flap.

Full system examination of remaining systems.

Bedside tests: Glucose, urine dipstick, ABG

Sodium 136 mmol/L [136 – 145]

Potassium 4.1 mmol/L [3.5 – 5.1]

Urea 7.2 mmol/L [2.1 – 7.1]
Creatinine **181** umol/L [49 – 90]
Total bilirubin **106** umol/L [5 – 21]

Conjugated bilirubin **87** umol/L [0 – 3]

Alanine transaminase (ALT) **200** U/L [7 – 35]

Aspartate transaminase (AST) 165 U/L [13 – 35]

Alkaline phosphatase (ALP) **365** U/L [42 – 98]

Gamma-glutamyl transferase (GGT) **519** U/L <40

Alpha-feto protein (AFP) 3.8 ug/L [0.0 – 7.0]

Carcinoembryonic Ag (CEA) 1.4 ug/L
0.0 – 5.0
CA 19-9 **83 H**
kU/L 0 – 34

Urine dipstick: Unknown, but may be useful in assessing renal tubular integrity.

Final diagnosis

?pancreatic non-benign lesion

?gastric malignancy in pancreas

?gallstone pancreatitis

- Most tumour markers are made by both normal cells and cancer cells, but they are made in larger amounts by

cancer cells. A tumour marker may help to diagnose cancer, plan treatment, or find out how well treatment is working or for recurrence. It is recommended however that tumour markers should not be used for diagnosis but rather for monitoring of patients.

- Normally synthesised by human pancreatic and biliary duct cells, as well as gastric, colon, endometrial and salivary epithelia. As a tumour marker, it is used for adenocarcinoma of the pancreas (↑ in 80% of cases), but the rise is too late to be useful in early disease.
- High dose hook effect can affect immunoassays giving falsely lowered result. This can be overcome with dilution.