RECORD OF LABORATORY TRAINING FOR THE IBMS SPECIALIST DIPLOMA MEDICAL MICROBIOLOGY

Institute of Biomedical Science

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Personal Details
Name:
IBMS Membership Number:
IBMS Membership Grade:
HCPC Registration Number:
Date of HCPC Registration:
Employment Address:
Telephone Number:
Date Specialist Training Commenced:
Name of Training Officer:

Confirmation of Completed Training		
Date Training Completed	Training Officer's Signature	Candidate's Signature

Recommendation for Award of Specialist Diploma		
Date of External Examination	External Examiner's Signature	External Examiner's Name

Training Review A training review should occur on a monthly basis between the trainee and training officer. These will provide an opportunity for feedback, set targets, agreed deadlines and monitor progress.		
Reviewed by	Date	Comments

CONTENTS

1. INTRODUCTION

1.1. In order for you to be awarded an Institute Specialist Diploma you must be a current member of the Institute since the time you were issued with the portfolio. You must have held corporate membership for at least one year and be a current member at the time of the examination.

1.2. The Institute of Biomedical Science (Institute/IBMS) Specialist Portfolio provides the opportunity for you to gain recognition that you have finished a programme of structured, standardised post-registration training. This requires you to complete the IBMS Record of Training for the Specialist Diploma (Specialist Portfolio), submit a portfolio of evidence for assessment and undertake an oral examination of your specialist knowledge and understanding in your chosen field, in order to be awarded the Institute's Specialist Diploma.

1.3. Holding a Specialist Diploma demonstrates that you have been assessed against a benchmark standard for a specialist practitioner in your chosen discipline. It can be used by your employer to demonstrate specialist knowledge and skills linked to career and pay progression.

1.4. The Specialist Portfolio is considered to be the property of the individual as it represents a commitment by the employer for professional development specific to them. It is not 'owned' by the laboratory. If you are re-employed in another laboratory and you wish to continue with a partially completed portfolio, it is at the discretion of your new employer whether or not they wish to continue with the same portfolio or restart the process. If they opt to continue with the existing portfolio, the new employer is responsible for reviewing the evidence in your portfolio and confirming your competence in line with the requirements of your position.

1.5. To support completion of this Specialist Portfolio a separate guidance document has been produced (*Institute of Biomedical Science Specialist Portfolio Guidance for Candidates, Training Officers and External Examiners).* This provides all of the information required to ensure the portfolio is completed and assessed in accordance with the Institute's requirements. Following the guidance in this document is essential to your success.

1.6. It is strongly recommended that you and your training officer/mentor read and understand this document. Failure to do so could jeopardise your chances of success. External examiners for the portfolio are required to read and understand it as part of their responsibility as a representative of the Institute.

1.7. A discipline specific portfolio reflects the range of analyses that are considered to be relevant to your specialty. All sections must be completed in order to express your ability to operate at the specialist level. Completion of the sections should follow the formal training programme that is submitted by your laboratory to the IBMS as part of the laboratory training approval process.

1.8. The IBMS Specialist Portfolio can only be completed in laboratories which hold IBMS approval for post-registration training.

1.9. The following sections highlight some key points **but are not a substitute** for reading the information contained in the *Institute of Biomedical Science Specialist Portfolio Guidance for Candidates, Training Officers and External Examiners.*

2. TRAINING

2.1. As a requirement for IBMS approval of your laboratory for training you must have an indicative training programme which sets out the sections of the laboratory they will rotate through, the expected duration in each area, the module(s) that are covered and how training is assessed.

2.2. In-service training and assessment must demonstrate good scientific practice based on the knowledge and competence in the stated modules in order to meet the requirements of the external examination process. Each module requires you to demonstrate knowledge and competence elements specific to an investigation or task. It is the responsibility of the trainer(s) to ensure that you meet the expected level defined by the following learning outcomes which have been subdivided into three areas.

Knowledge and understanding
As a successful candidate you will be able to:

a. Demonstrate knowledge and understanding of complex scientific and technical aspects of their specialist discipline including: correct procedures for handling specimens before, during and after analysis; maintenance of routine equipment; principles of in-house data management systems and quality control/assurance procedures.

b. Demonstrate knowledge and understanding of the scientific basis of the laboratory tests and the disease process under investigation.

c. Show an awareness of current issues and developments within healthcare and biomedical science.

These are evidenced by in-house assessments of training and examination of knowledge during the *viva voce* with the external examiner to assess the ability of the candidate to describe/discuss these aspects of their work.

Professional skills
As a successful candidate you will be able to:

a. Competently perform a range of laboratory tests without immediate supervision.

b. Demonstrate self-direction in solving problems and exercising personal autonomy in relation to scope of practice.

c. Demonstrate a systematic application of professional knowledge and understanding in the interpretation of laboratory data to determine action based on best practice.

These are evidenced by the in-house assessments of training and portfolio of evidence.

Transferable skills
As a successful candidate you will be able to:

a. Demonstrate communication skills within the healthcare environment and as part of the laboratory team. This is evidenced by the presentation.

b. Demonstrate the ability to critically reflect in order to inform best practice. This is evidenced by personal reflective statements.

2.3. Where you do not have access to a particular technique, knowledge must still be demonstrated together with an understanding of the key skills required to perform the test. There may also be other tests your laboratory includes within its basic in-house repertoire in which you are additionally required to be competent. These can be assessed and then recorded in the reflective practice statement at the end of each sub-section.

2.4. The Institute recommends that you have a regular review of your training (e.g. on a monthly basis) with your training officer in order to monitor your progress. These sessions will provide an opportunity for you to receive feedback on how your training and completion of your portfolio is progressing against the structured departmental training programme you will be following, which is a requirement for IBMS training laboratory approval). It is a time to take into consideration issues that have impacted

on your training, and whether additional support is required or available. Targets to complete stages of your training can be set and deadlines for meeting them, agreed.

3. EVIDENCE

3.1. Evidence is generated through the internal assessment of your training and can be from a variety of sources (see section 5.11 in the guidance document for some examples). Many pieces of evidence will be generated and you will need to select those most suitable for the Specialist Portfolio module. Your training officer should be asked to check these are appropriate and confirm meet the requirements of the standards for external examination.

3.2. Evidence must be filed in a single specialist portfolio of evidence.

3.3. In addition to evidence of answering questions set by the trainer only ONE other example of evidence is required for the **Evidence of Achievement** section. This is chosen by you as an example of evidence that demonstrates your knowledge and competence in performing a particular technique.

3.4. You are required to justify your choice of evidence in a reflective practice statement at the end of every module.

3.5. Evidence must be sufficient to enable an informed judgement by the external examiner on whether the standard in terms of knowledge and skills for the module has been met.

The amount of evidence must not exceed the requirement for evidence stipulated in the evidence of achievement section and should be presented in one A4 size lever arch folder.

3.6. Your portfolio of evidence will be externally assessed as part of examining your suitability for the award of an IBMS Specialist Diploma. It is very important that it is well organised and an index for the evidence is provided.

4. COMPLETING THE RECORD OF LABORATORY TRAINING

4.1. Once you have completed your training for a particular module it must be signed off by the trainer to confirm that the knowledge and competence requirements and the Evidence of Achievement sections have been met.

4.2. You are required to complete a reflective practice statement at the end of each module to justify your selection of evidence.

4.3. All sections of your record of training for the Specialist Portfolio must be completed and signed off by the trainer, and your portfolio of supporting evidence checked, to confirm your suitability for the specialist examination.

5. END-POINT ASSESSMENT

5.1. On completion of training and in accordance with the requirements of the Specialist Diploma, your employer should apply to the Institute for the appointment of a visiting external examiner.

5.2. Accompanying the portfolio should be a signed statement from the laboratory manager testifying to the range of laboratory investigations that you undertake in your own laboratory. This will be used by the external examiner to guide the areas for questioning during the laboratory tour. Please note the external examiner can ask questions on any of the modules in the record of training for the Specialist Portfolio and your portfolio of evidence.

5.3. The external examiner will determine your suitability for the award of the Specialist Diploma by assessing your knowledge and understanding of your specialty through: the oral presentation; the evidence of training you have provided and questions asked during the laboratory tour.

5.4. Your presentations should not be overcomplicated and slides should be kept simple: they are really a prompt to give your talk a structure. You are talking about things you know: how you gained your experience, key aspects of your work, recent developments that may have occurred, or are planned and any particular interests you have. The external examiner may also wish to ask some questions related to the presentation or seek points of clarification.

5.5. Your portfolio of evidence will provide the examiner with an opportunity to assess the quality of your training (e.g. through the questions asked by the trainer) and your understanding of the techniques (e.g. annotated evidence, witness statements, reflective statements).

5.6. During the laboratory tour with *viva voce* the external examiner will not assess your practical competence; this was the responsibility of your trainer. However, they will expect you to be able to demonstrate knowledge and understanding of the practical

aspects underpinning a techniques and corrective action you might take if things go wrong.

It is reasonable for the examiner to ask questions on any aspect covered in the portfolio. A theoretical knowledge is required as a minimum on tests performed outside of the department. Questions may include references to equipment in use, samples that are being processed, investigative techniques being performed, quality control, results and health and safety.

5.7. After this you will be informed of the outcome (Pass or Fail) and verbal feedback will be provided by the examiner. If you have not been successful the examiner will provide more detailed written feedback explaining the reason(s) for this outcome and providing guidance on how to address them. This will be recorded in the examiner's report. A timeline will be agreed by the candidate, training officer and examiner to address any shortfalls. A subsequent full or partial examination will be required and this must be arranged through the IBMS.

6. COMPLETION OF REPORTS AND AWARD

6.1. Check with your trainer that they have submitted the feedback report form to the Institute. Both the external examiner and the laboratory trainer are required to submit reports, and delays in this part of the process will delay the award of your Specialist Diploma.

6.2. Once the reports have been received the Institute will issue your Specialist Diploma. If you are currently in the class of Licentiate you will be eligible to apply to upgrade your membership to become a Member. Upgrading to the next level of membership is not automatic and you are advised to make an application to the Institute as soon as possible in order to access the Institute's higher level qualifications to assist you in furthering your career.

Section: 7
Medical Microbiology

This section covers the range of procedures and diagnostic techniques that have been identified as being most relevant to practice as a specialist biomedical scientist working in medical microbiology. Candidates completing these are expected to be able to demonstrate the application of knowledge and skill defined in section 2 of this portfolio.

It is accepted that some of these tests may not be performed in the candidate's own laboratory. Whilst practical skills may not be achievable (for example through secondment to another laboratory) to the level of someone performing them regularly, knowledge and understanding of its application is still required and may be examined.

There may be other tests, outside of those listed in this portfolio, that are part of the training laboratory's basic repertoire in which the individual is required to be competent. These can be recorded in the reflective statement at the end of each sub-section.

Section 7.1 Urinary Samples

Subsection 7.1a Microscopy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Basic principles behind microscopes and how to use them correctly.
2. Significance of reporting casts in urine wet films.
3. Significance of reporting all eukaryotic cell types in urine wet films.
4. Reasons other than bacterial infection why white blood cells are found in urine wet films.
5. Key parasites that can be found in urine.
6. Different pathological crystals that may be found in urine.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Identify the different cell types present.
c. Quantify cell types according to laboratory procedure.
d. Report results accurately and in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.1 Urinary Samples

Subsection 7.1b Automated urine screening techniques

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Different automated techniques available for processing urine samples both within and outside the laboratory setting.
2. Key principles behind the different screening procedures.
3. Advantages and disadvantages of automated techniques.
4. Biochemical markers and their use in screening for urinary tract infection (e.g. urinary dipsticks).

COMPETENCE

Be able to:

a. Demonstrate a working knowledge of the different automated urine screening methodologies available.
b. Demonstrate an understanding of the benefits and drawbacks of introducing automated screening techniques into a microbiology department.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.1 Urinary Samples
Subsection 7.1c Bacterial pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Theory behind the quantification of urine culture and variables involved.
2. Different procedures used for quantifying urine cultures.
3. Common bacterial pathogens of the urinary tract and the clinical conditions in which they are found.
4. Presumptive identification of the common pathogens.
5. Reasons why isolates from hospital patients may differ from those found in the community.
6. Composition and method of action of various media used in the isolation of urinary tract pathogens.
7. Reasons why urinary tract infections (UTIs) can be caused by more than one organism.
8. Different sample types available, and their advantages and disadvantages.
9. Use of preservatives for urine samples.
10. Causes for asymptomatic bacteriuria.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of urine samples.
b. Make a presumptive identification of the different organisms present.
c. Quantify the organisms present according to laboratory procedure.
d. Interpret the result and report results.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.1 Urinary Samples
Subsection 7.1d Urinary antibiotics

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Standard antibiotics commonly used to treat urinary tract infections, and their limitations.
2. Basic pharmacological principles of the antibiotics used in the treatment of urinary tract infections.
3. How to perform and interpret sensitivity results on urinary isolates.
4. Limitations of performing direct susceptibility testing on urine samples.
5. How the presence of antibiotics in the patient's sample can easily be demonstrated.

COMPETENCE

Be able to:

a. Perform and interpret appropriate direct sensitivity testing on suspected positive urine samples.
b. Record these results and compare them with a more standardised method.
c. Determine, in accordance with laboratory procedure, whether these results should be reported.
d. Perform and interpret appropriate routine sensitivity testing, if different from above, and know when further tests are necessary.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.1 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.1 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.2 Genital Samples

Subsection 7.2a Microscopy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Basic principles behind microscopes and how to use them correctly.
2. Range of different micro-organisms that can be found in the genital tract.
3. The role of normal flora.
4. Different staining and microscopy techniques that may be used to detect genital tract infections.
5. Significance of reporting 'clue cells' in the different genital samples.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Interpret microscopy results.
c. Quantify cells present according to laboratory procedure.
d. Record and report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.2 Genital Samples

Subsection 7.2b Genital tract pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Range of different pathogens that can be found in genital tract and how they may be genital site-specific.
2. The role of normal flora.
3. Confirmation and identification the presence of bacterial pathogens and yeasts. This includes:
   - presumptive identification of common pathogens
   - confirming the identity of these pathogens.
4. Use of molecular technologies for the detection of genital tract pathogens.
5. Underpinnings of composition and method of action of various media used in isolation of genital tract pathogens.
6. Different techniques used to detect other pathogens, including *Chlamydia trachomatis* and viruses.
7. Impact that the patient's condition (e.g. pregnancy) may have on the result.
8. The need for the use of transport media for genital swabs.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of genital samples.
b. Identify the different organisms present.
c. Confirm the identity of suspect isolates in accordance with laboratory procedure.
d. Interpret the result, taking into account all the information provided.
e. Set-up, read and record correct susceptibility tests.
f. Report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.2 Genital Samples

Subsection 7.2c ***Neisseria gonorrhoea***

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. *Neisseria* species that can be isolated from the genital tract.
2. Key principles behind the biochemical identification of *Neisseria gonorrhoeae*.
3. Antigenic methods available for confirming *Neisseria gonorrhoeae* identification.
4. Advantages and disadvantages of molecular techniques in the detection of *Neisseria gonorrhoeae* infection.

COMPETENCE

Be able to:

a. Interpret appropriate Gram film results of suspect colonies.
b. Confirm the identification of *Neisseria gonorrhoeae* biochemically, in accordance with laboratory procedure.
c. Confirm the identification of *Neisseria gonorrhoeae* antigenically, if appropriate, in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.2 Genital Samples

Subsection 7.2d Medico-legal implications

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. The increased medico-legal implications when *Neisseria gonorrhoeae* is isolated.
2. Why some samples have greater medico-legal implications than others.
3. Which other organisms from genital samples may be looked for in medico-legal samples.
4. The receiving, recording and reporting procedures necessary for medico-legal samples.

COMPETENCE

Be able to:

a. Record and report all the relevant information required, in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.2 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.2 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.3 Gastro-Intestinal Tract Samples

Subsection 7.3a Isolation and identification of bacterial pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Common bacterial pathogens associated with gastro-intestinal disease.
2. The role of normal flora.
3. Mechanisms involved in the bacterial production of gastro-intestinal disease.
4. Presumptive identification based on colonial morphology and simple laboratory tests.
5. Identification of isolated pathogens including the use of biochemical and serological tests.
6. Composition and method of action of various media used in isolation of gastro-intestinal tract pathogens.
7. Typing techniques available.
8. Patient management and control of infection measures.
9. Therapeutic regimes for common gastro-intestinal pathogens.
10. Culture media and procedures necessary for the optimal isolation of *Clostridium difficile*, when required.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient processing of faecal samples.
b. Identify the different bacterial pathogens isolated.
c. Perform agglutination tests where appropriate.
d. Perform and interpret biochemical tests where appropriate.
e. Choose investigations based on local policy and clinical details.
f. Report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Gastro-Intestinal Tract Samples
Subsection 7.3b Detection of viral pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Viral causes of gastro-intestinal disease.
2. Techniques available for the detection of the common viral pathogens.
3. Reasons why certain patient groups are more likely to develop viral gastro-intestinal disease.
4. Patient management and control of infection measures.

COMPETENCE

Be able to:

a. Demonstrate the safe and efficient processing of faecal samples for viral detection.
b. Interpret at least one method for the detection of viral pathogens in faeces.
c. Record and report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Gastro-Intestinal Tract Samples
Subsection 7.3c Detection of toxins

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Main toxins associated with gastro-intestinal disease and their modes of action.
2. Key principles behind at least one assay for the detection of toxin(s) associated with gastro-intestinal disease.
3. Advantage and disadvantage of the methods involved in toxin detection.
4. How the disease process is associated with at least one type of bacterial enterotoxin.
5. Role of reference laboratories in the detection of bacterial enterotoxins.
6. Current recommendations for the processing of faecal samples for *Clostridium difficile* toxin(s).
7. Molecular methods for detection of *Clostridium difficile* toxins.

COMPETENCE

Be able to:

a. Describe the principles and practice of the techniques used for the detection of key toxins involved in gastro-intestinal disease.
b. Demonstrate the safe and efficient processing of faecal samples for toxin detection.
c. Interpret toxin detection results.
d. Record and report accurate result according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Gastro-Intestinal Tract Samples
Subsection 7.3d Serological identification of bacteria

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Principles of serological methods for the identification of gastro-intestinal pathogens.
2. Which pathogens require a serological identification.
3. Limitations associated with these techniques.
4. How to use the Kauffmann-White scheme in the identification process for *Salmonella* serotypes.
5. Reporting procedures of serological results.

COMPETENCE

Be able to:

a. Perform a range of slide agglutination tests to aid in the identification of pathogenic bacteria from faecal samples.
b. Propose how a full serological identification could be performed and comment on the techniques involved.
c. Determine how these results are reported in association with other test results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Gastro-Intestinal Tract Samples
Subsection 7.3e Typing techniques

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. When it is necessary to type gastro-intestinal isolates and the techniques involved.
2. Molecular methods for the typing of gastro-intestinal pathogens.
3. Correct laboratory procedure for sending isolates to reference laboratories.
4. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Recognise when it is necessary to send isolates for typing.
b. Prepare isolates in appropriate transport medium/system for transportation.
c. Label and package isolates and send to appropriate reference laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Gastro-Intestinal Tract Samples
Subsection 7.3f Identification of faecal ova, cysts and parasites

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Diversity of ova, cysts and parasites that can be seen in faecal samples.
2. How to use microscopy (including use of calibrated eye-piece) in identifying ova, cysts and parasites.
3. Staining procedures used on faeces samples.
4. Concentration techniques used.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Demonstrate safe and precise staining and concentration techniques.
c. Identify any ova, cysts or parasites present.
d. Report any positive isolates in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.3 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce.*

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.3 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.4 Mucosal and Soft Tissue Samples

Subsection 7.4a Microscopic interpretation

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Basic principles behind microscopes and how to use them correctly.
2. Various staining techniques that are commonly used.
3. Procedure for correct interpretation and reporting of Gram films.
4. Significance of seeing 'spirochetes' in Vincent's stained slides.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Use staining techniques in accordance with laboratory procedure.
c. Interpret the different cell types and organisms present.
d. Report results in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples
Subsection 7.4b Wounds and abscesses

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Interpretation and identification of bacterial pathogens in wounds and abscesses. This includes:
   - presumptive identification of these pathogens
   - confirming the identity of these pathogens
2. Common pathogens associated with wounds and abscesses.
3. Composition and method of action of various media used in the isolation of these bacterial pathogens.
4. Theory behind the different confirmation techniques.
5. When it is necessary to send bacterial isolates for further typing.
6. Different sample types available and their advantages and disadvantages.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of wound and abscess samples, in accordance with laboratory procedure.
b. Give a presumptive identification of different organisms present, using all the information provided.
c. Identify the significant organisms present in accordance with laboratory procedure.
d. Determine which isolates require susceptibility testing and set-up relevant susceptibility tests.
e. Record and report an accurate result according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples

Subsection 7.4c Mucosal swabs

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Interpretation and identification of bacterial pathogens in mucosal and soft tissue samples. This includes:
   - presumptive identification of these pathogens
   - confirming the identity of these pathogens
2. Common pathogens associated with mucosal surface infection.
3. Composition and method of action of various media used in isolation of mucosal pathogens.
4. Theory behind the different confirmation techniques.
5. When it is necessary to send bacterial isolates for further typing.
6. When it is necessary to send bacterial isolates for toxigenicity testing.
7. Different sample types available and their advantages and disadvantages.
8. Safety implications when performing procedures likely to create aerosols.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of mucosal samples, in accordance with laboratory procedure.
b. Presumptively identify the different organisms present, using all the information provided.
c. Fully identify the significant organisms present in accordance with laboratory procedure, using relevant kits when appropriate.
d. Determine which isolates require susceptibility testing and set up relevant susceptibility tests.
e. Record and report an accurate result according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples

Subsection 7.4d Tissue samples, excluding orthopaedic samples

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Interpretation and identification of bacterial pathogens in tissue samples other than orthopaedic samples. This includes:
   - presumptive identification of these pathogens
   - confirming the identity of these pathogens
2. Common pathogens associated with tissue infection.
3. Composition and method of action of various media used in isolation of pathogens from tissue samples.
4. Theory behind the different confirmation techniques.
5. Procedure for performing broth subculture, if appropriate.
6. Different sample types available and their advantages and disadvantages.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of tissue samples.
b. Demonstrate safe and efficient subculture of any broths inoculated.
c. Presumptively identify the different organisms present, using all the information provided.
d. Fully identify the significant organisms present, in accordance with laboratory procedure, using relevant kits when appropriate.
e. Determine which isolates require susceptibility testing and set up relevant susceptibility tests.
f. Record and report accurate results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples

Subsection 7.4e Orthopaedic samples

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Common pathogens associated with orthopaedic site infection.
2. Which media to inoculate and why broth culture is usually required.
3. Interpretation and identification of bacterial pathogens in orthopaedic samples. This includes:
   - presumptive identification of these pathogens
   - confirming the identity of these pathogens
4. Theory behind the different confirmation techniques.
5. Procedure for performing broth subculture.
6. The need (ideally) for multiple samples from the same site.

COMPETENCE

Be able to:

a. State why orthopaedic samples are treated differently to most other tissue samples.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples
Subsection 7.4f Detection of toxins

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Main toxins and modes of action associated with bacterial disease.
2. Key principles for demonstrating if an isolate of *Corynebacterium diphtheriae* is toxigenic (e.g. Elek test).
3. Role of reference laboratories in the detection of bacterial toxins.
4. Correct laboratory procedure for sending isolates to reference laboratories.
5. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe the principles and practice of the techniques used for the detection of key toxins involved in bacterial disease.
b. Describe the procedure for referring suspect isolates for toxigenicity testing.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Mucosal and Soft Tissue Samples

Subsection 7.4g Typing techniques

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. When it is necessary to type bacterial isolates from mucosal and soft tissue and the techniques involved.
2. Correct laboratory procedure for referring isolates to reference laboratories.
3. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Recognise when it is necessary to send isolates for typing.
b. Prepare isolates in appropriate transport medium/system for transportation in accordance with laboratory procedure.
c. Correctly label and package isolates to send to appropriate reference laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.4 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.4 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5a Microscopy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Risks and principles for the safe handling of CSF samples from high-risk patients (e.g. Creutzfeldt-Jakob disease [CJD], tuberculosis [TB]).
2. Basic principles behind microscopes and how to use them correctly.
3. How to count and quantify both white and red blood cells in sterile body fluids.
4. Normal ranges of white blood cells in CSF samples and other sterile body fluids (i.e. continuous ambulatory peritoneal dialysis [CAPD] fluid).
5. The need for urgency in providing a quick and accurate result.
6. Reasons other than bacterial infection why white blood cells may be raised in such samples.
7. Microscopic procedures to aid in the diagnosis of subarachnoid haemorrhage.
8. How to differentiate any white blood cells present.
9. Significance of the cell differential result.
10. How to use microscopic investigation to detect more unusual isolates (e.g. *Cryptococcus neoformans*).
11. Staining techniques used for sterile body fluids.
12. When it is necessary to concentrate fluid samples.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Demonstrate safe and correct staining technique.
c. Demonstrate safe and correct concentration technique.
d. Interpret stained microscopy results.
e. Quantify both white and red blood cells according to laboratory procedure.
f. Differentiate white blood cells, if appropriate.
g. Record and report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5b Bacterial pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Bacterial pathogens usually associated with bacterial meningitis.
2. Why the most probable pathogen isolated is often dependent on the age of the patient.
3. Interpretation and identification of the presence of bacterial pathogens, including:
   - presumptive identification of these pathogens
   - confirming the identity of these pathogens
4. How biochemical markers can aid in the diagnosis of bacterial meningitis.
5. Composition and reasoning behind why various different media are used
6. When the use of broth enrichment is recommended.
7. Different sample types available and their advantages and disadvantages.
8. Reasons why routine culture of CSF samples may prove unproductive.
9. Safety implications when performing procedures likely to create aerosols.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of normally sterile fluid samples, in accordance with laboratory procedure.
b. Demonstrate safe and efficient subculture of any broths inoculated.
c. Presumptively identify any organisms present, using all the information provided.
d. Identify the significant organisms present, in accordance with laboratory procedure, using relevant kits when appropriate.
e. Set up relevant susceptibility tests, including direct susceptibility tests where appropriate.
f. Record and report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5c Non-Bacterial Pathogens in CSF

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Pathogens other than bacterial that can be isolated from CSF samples.
2. Viruses associated with CSF samples, mainly causing viral encephalitis.
3. How the underlying condition of the patient (e.g. AIDS) can greatly affect the possible isolate.
4. How to give a presumptive identification of non-bacterial pathogens.
5. Urgency of CSF samples.
6. Safety implications when performing procedures likely to create aerosols.

COMPETENCE

Be able to:

a. Describe the various non-bacterial causes of meningitis/encephalitis.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5d Rapid detection techniques for diagnosing bacterial meningitis

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Techniques available in a standard laboratory setting.
2. Reasons why routine culture of CSF samples may prove unproductive.
3. How samples other than CSF may prove useful in diagnosing bacterial meningitis.
4. Techniques available at reference laboratories.
5. Samples required by reference laboratories.
6. Correct laboratory procedure for referring isolates to reference laboratories.
7. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe rapid detection techniques available for diagnosing bacterial meningitis.
b. Correctly label and package correct samples and refer to appropriate reference laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5e Typing techniques

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. When it is necessary to type bacterial isolates from CSF samples and the techniques involved.
2. How samples other than CSF may prove useful when typing possible bacterial meningitis cases.
3. Techniques available at reference laboratories.
4. Samples required by reference laboratories.
5. Correct laboratory procedure for sending samples/isolates to reference laboratories.
6. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe the role typing bacterial isolates has in providing epidemiological information.
b. Explain when it is necessary to send samples/isolates for typing.
c. Correctly label and package samples/isolates, and send to appropriate reference laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Cerebral Spinal Fluid and other Normally Sterile Body Fluids
Subsection 7.5f National vaccination policy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Different vaccines available and any that are currently being developed.
2. Impact of the national vaccination policy "Green Book*" and its weaknesses.
3. The necessity of typing bacterial meningitis cases to inform both the current clinical situation and future vaccination strategy.

* https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book#the-green-book)

COMPETENCE

Be able to:

a. Describe the current national vaccination policy and the impact this has had on the number of cases of bacterial meningitis.
b. Describe the role of the laboratory in helping inform future strategy.
c. Give an example where the vaccination strategy failed to protect travellers from bacterial meningitis.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.5 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce.*

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.5 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.6 Blood Culture Samples

Subsection 7.6a Principles and use of blood culture systems

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Principles of at least one continuous monitoring blood culture system.
2. Mechanisms whereby a positive signal is generated.
3. Reasons for generation of a false-positive signal by the instrument.
4. Different types of media used in blood culture systems and why they are used.
5. Procedures used for taking samples and optimal transport and processing.
6. Different approaches necessary when bacterial endocarditis is suspected.
7. Safety aspects of processing blood cultures.
8. How neutralisation of antimicrobial agents and other inhibitory factors can be achieved.

COMPETENCE

Be able to:

a. Describe the use of blood culture systems.
b. Demonstrate safe and efficient loading operation and basic troubleshooting and maintenance of the system.
c. Demonstrate how positive and negative samples are processed.
d. Describe the different approaches necessary when bacterial endocarditis is suspected.
e. Demonstrate how to access and interpret additional system data including graphs depending on the laboratory system.
f. Report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.6 Blood Culture Samples
Subsection 7.6b Microscopy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Principles behind microscopes and how to use them correctly.
2. Safety aspects of processing positive blood cultures for microscopy.
3. Techniques available for processing the sample for microscopy.
4. Characteristic microscopic features that differentiate bacterial genera/groups.
5. Procedures available in the event of negative microscopy.
6. Reporting procedures for microscopic findings.
7. How the sample is processed based on microscopic findings.
8. Local retention guidelines for storing microscopic preparations.

COMPETENCE

Be able to:

a. Provide a microscopic interpretation of the cause of a positive blood culture.
b. Demonstrate the safe and efficient processing of positive blood culture samples for microscopy.
c. Demonstrate safe and correct staining techniques including alternative techniques when indicated.
d. Distinguish the different bacterial groups using microscopy.
e. Interpret record and report results according to laboratory procedure.
f. Demonstrate the correct procedure for processing bottles that give a positive signal, but have no organisms detected on direct microscopy.
g. Store microscopic preparations in line with current local retention guidelines.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.6 Blood Culture Samples
Subsection 7.6c Bacterial pathogens in septicaemia and bacteraemia

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Pathogens most likely to be the cause of septicaemia and bacteraemia and how they are identified.
2. Principles of how bacteria can cause bloodstream infections.
3. Principles of how bacteria can cause endocarditis.
4. Symptoms of septicaemia.
5. Other markers of bloodstream infection.
6. Principles of antimicrobial therapy for septicaemia.
7. Rapid methods to identify blood culture isolates including molecular techniques.

COMPETENCE

Be able to:

a. Describe the bacterial causes of septicaemia and bacteraemia.
b. Demonstrate optimal methods for processing positive blood cultures.
c. Determine the identity of the positive isolate.
d. Use a range of techniques to fully identify the isolate.
e. Demonstrate procedures for investigating a culture-negative sample.
f. Use antigen tests to identify the causative agent where appropriate.
g. Set up appropriate susceptibility testing dependent on the expected isolate.
h. Describe rapid methods available for identifying blood culture isolates including molecular techniques.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.6 Blood Culture Samples
Subsection 7.6d False-positive signals

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Reasons for generation of a false-positive signal by the instrument.
2. Laboratory procedure for dealing with samples that have generated a false-positive signal and reporting results.

COMPETENCE

Be able to:

a. Describe why bottles appear to generate false-positive signals.
b. Explain the possible reasons for the result using instrument and other data as appropriate.
c. Process samples correctly according to laboratory procedures.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.6 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.6 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.7 Lower Respiratory Tract Samples
Subsection 7.7a Microscopy

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Basic principles behind microscopes and how to use them correctly.
2. Range of different microorganisms that can be found in the lower respiratory tract.
3. The role of the normal flora.
4. Different staining and microscopy techniques that may be used to detect infections in the lower respiratory tract.
5. Procedure for detecting and confirming acid/alcohol-fast bacilli (AAFB) in lower respiratory tract samples.
6. The need for some degree of urgency when AAFB are detected in a patient for the first time and the reporting procedure.
7. Procedures for homogenising and concentrating lower respiratory samples, as appropriate.
8. Procedures for dealing with samples that may contain hazard group 3 organisms.

COMPETENCE

Be able to:

a. Use appropriate microscope(s).
b. Perform staining technique.
c. Perform concentration technique.
d. Use containment level 3 facilities.
e. Interpret microscopy results.
f. Follow the procedures when acid/alcohol-fast bacilli are detected for the first time in a patient.
g. Record and report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.7 Lower Respiratory Tract Samples
Subsection 7.7b Identification of bacterial pathogens, fungi and yeast

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Range of different pathogens that can be found in the lower respiratory tract and the role of the normal flora.
2. Composition of various culture media used in the isolation of lower respiratory tract pathogens.
3. How to give a presumptive identification of the various pathogens.
4. How to confirm the identification of the various pathogens.
5. When to look for more unusual pathogens (e.g. *Legionella pneumophila*).
6. Impact that the patient's condition (e.g. cystic fibrosis patients, intensive care patients) may have on the result.
7. Procedures for homogenising and concentrating lower respiratory samples, as appropriate.
8. Significance of growing fungi from respiratory samples.
9. Procedures for dealing with samples that may contain hazard group 3 organisms.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of lower respiratory samples.
b. Presumptively identify the different organisms present.
c. Confirm the identity of suspect isolates in accordance with laboratory procedure.
d. Interpret the result using all the information at hand.
e. Perform, interpret and record susceptibility tests as appropriate.
f. Report results according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.7 Lower Respiratory Tract Samples
Subsection 7.7c Mycobacteria and rapid detection techniques

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Techniques available in a standard laboratory setting.
2. How samples other than sputum may prove useful in diagnosing infection caused by mycobacteria.
3. Requirement to occasionally send culture-negative samples for molecular testing
4. Techniques available at reference laboratories.
5. Correct laboratory procedure for sending isolates to either other routine laboratories or reference laboratories, as appropriate.
6. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe various methods available for isolating *Mycobacterium* species, including the role of molecular techniques in rapid diagnosis.
b. Correctly label and package samples and send to appropriate reference/routine laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.7 Lower Respiratory Tract Samples
Subsection 7.7d Cystic fibrosis

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Cause and consequence of cystic fibrosis.
2. Implications to the patient from a microbiology perspective and how this may vary throughout life.
3. Range of organisms involved in infecting/colonising cystic fibrosis patients.
4. Composition and method of action of various media used in the isolation of these pathogens.
5. How to confirm the identification of the various pathogens.
6. Antibiotics routinely used in cystic fibrosis patients.
7. Procedures for dealing with samples that may contain hazard group 3 organisms.

COMPETENCE

Be able to:

a. Explain why cystic fibrosis patients need to have an increased awareness of microbiology.
b. Describe the isolation/detection techniques used to detect infection/colonisation in cystic fibrosis patients.
c. Describe the antimicrobial agents used to treat cystic fibrosis patients and why accurate *in vitro* susceptibility testing is difficult to achieve.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.7 Lower Respiratory Tract Samples
Subsection 7.7e Containment level 3 facility

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Advisory Committee on Dangerous Pathogens (ACDP) and Control of Substances Hazardous to Health (COSHH) guidelines for microorganisms.
2. Which organisms are categorised as Hazard Group 3 and 4.
3. Additional safety precautions necessary when dealing with Hazard Group 3 samples.
4. How and when to use Personal Protective Equipment (PPE).
5. How to maintain and check the efficiency of PPE.
6. Evacuation procedure in the event of a serious spillage, as appropriate.
7. Laboratory procedure governing authority to work in a Containment Level 3 facility.

COMPETENCE

Be able to:

a. Describe guidelines governing working in Containment Level 3 facilities.
b. Work in accordance with local procedures governing working in Containment Level 3 facilities.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.7 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.7 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.8 Infection Control Samples
Subsection 7.8a Patient/staff screening

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Which pathogens may require the laboratory to instigate a screening procedure.
2. Impact of molecular techniques on screening.
3. Composition of the various media used in the isolation of these bacterial pathogens.
4. Presumptive identification of these pathogens.
5. Confirmed identification of these pathogens.
6. Theory behind the different confirmation techniques.
7. When it is necessary to send bacterial isolates for further typing.
8. When it is necessary to send bacterial isolates for toxigenicity testing.
9. Different sample types available and their advantages and disadvantages.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of screening samples, in accordance with laboratory procedure.
b. Interpret and identify the presence of bacterial pathogens in patient/staff screening samples including:
   - presumptive identification of different organisms present, using all the information provided.
   - identification of significant organisms.
c. Determine which isolates require susceptibility testing and set up relevant susceptibility tests.
d. Record and report an accurate result according to laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.8 Infection Control Samples

Subsection 7.8b Theatres and environmental screening

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Current guidelines governing air quality in theatres.
2. Disinfection policy used in the hospital.
3. Disposal policy used in the hospital.
4. How the air quality in theatres is monitored.
5. How the microbial cleanliness of the hospital environment and equipment is checked.

COMPETENCE

Be able to:

a. Describe current national guidelines for environmental monitoring within the hospital.
b. Explain the requirement to monitor the microbial cleanliness of theatres and the hospital environment.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.8 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.8 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.9 Antimicrobial Susceptibility Testing
Subsection 7.9a Qualitative testing

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Difference between qualitative and quantitative susceptibility testing.
2. Current national/international guidelines available.
3. Different qualitative techniques available.
4. Limitations of testing certain antimicrobial agents *in vitro*.
5. When certain antimicrobial agent profiles for an organism are invalid.
6. Laboratory procedure for performing and interpreting qualitative susceptibility results.
7. How to record and report results.
8. Recommended media types for qualitative susceptibility testing.
9. Standardised methodology available for susceptibility testing

COMPETENCE

Be able to:

a. Describe different qualitative susceptibility testing methods.
b. Obtain a pure inoculum at the correct concentration and incubate in appropriate conditions, according to laboratory procedure.
c. Choose the appropriate range of antimicrobial agents for the organism under investigation.
d. Interpret and record qualitative susceptibility results.
e. Report the results in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.9 Antimicrobial Susceptibility Testing
Subsection 7.9b Quantitative testing

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Difference between qualitative and quantitative susceptibility testing.
2. Current national/international guidelines available.
3. Different quantitative techniques available including automated technologies.
4. Limitations of testing certain antimicrobial agents *in vitro*.
5. When certain antimicrobial agent profiles for an organism are invalid.
6. Laboratory procedure for performing and interpreting quantitative susceptibility results.
7. How to record and report results.
8. Recommended media types for quantitative susceptibility testing.
9. Significance of minimum inhibitory concentration (MIC).
10. Significance of minimum bactericidal concentration (MBC).
11. Difference between bacteriostatic and bactericidal agents.

COMPETENCE

Be able to:

a. Describe different quantitative susceptibility testing methods.
b. Describe the significance of quantitative susceptibility testing results.
c. Obtain a pure inoculum at the correct concentration, according to laboratory procedure.
d. Choose the appropriate range of antimicrobial agent for the organism under investigation.
e. Interpret and record quantitative susceptibility results.
f. Report the results in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

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Date of completion:

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Trainer's signature:

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Date of completion:

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Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.9 Antimicrobial Susceptibility Testing
Subsection 7.9c Antimicrobial combinations and synergy testing

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. The procedure for testing antimicrobial synergy between two different agents.
2. How antimicrobial combinations can produce synergistic, antagonistic, additional and indifference effects.
3. Which agents are commonly used in combination because of their synergistic effect.
4. Under which clinical circumstances antimicrobial combinations are often given.

COMPETENCE

Be able to:

a. Describe which antibiotic combinations prove to be synergistic *in vivo* and how this is examined *in vitro*.
b. Explain when and where it is necessary to test for antimicrobial synergy.
c. Describe how antimicrobial synergy can be detected.
d. Describe which antimicrobial combinations are effective.
e. Give examples of clinical situations in which antimicrobial combinations are often used.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

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Date of completion:

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Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.9 Antimicrobial Susceptibility Testing
Subsection 7.9d Resistance markers

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. To which antibiotics the most common pathogens are intrinsically resistant.
2. Different techniques available for detecting the common inactivating enzymes.
3. Which resistance markers may prove useful in detecting more widespread resistance to that class of antimicrobial agent (e.g. extended-spectrum β-lactamases [ESBLs]).
4. When certain antimicrobial profiles for an organism are invalid.
5. Procedure for recording and reporting resistance markers.

COMPETENCE

Be able to:

a. Detect the presence of common inactivating enzymes, in accordance with laboratory procedure.
b. Give examples of which antimicrobial agents act as markers for more widespread resistance in that class of agent.
c. Record and report the detection of resistance markers, in accordance with laboratory procedure.
d. Recognise invalid antimicrobial profiles.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

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Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.9 Antimicrobial Susceptibility Testing
Subsection 7.9e Antimicrobial assays

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Theory behind chemotherapeutic index values.
2. Range of antimicrobial agents that require patient's serum level monitoring.
3. Procedure for monitoring serum antimicrobial levels and the principles of the methodology.
4. Acceptable range of peak and trough serum levels for the commonly monitored antimicrobial agents.
5. How to calibrate, maintain and quality control the equipment used.
6. Recording and reporting procedure of the result.
7. Procedure if an inappropriate result is obtained.
8. Procedure for dealing with samples from Hazard Group III patients.
9. Requirement for Personal Protective Equipment (PPE).
10. Range of antimicrobial serum level monitoring available at reference laboratories.
11. Correct laboratory procedure for sending samples to either other routine laboratories or reference laboratories, as appropriate.
12. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe the principles of the test used.
b. Calibrate and maintain the equipment.
c. Process samples in a safe and correct manner.
d. Interpret and record the result.
e. Recognise when a result is invalid and how to proceed.
f. Report the results in accordance with laboratory procedure.
g. Correctly label and package samples and send to the appropriate reference/routine laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.9 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.9 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.10 Serological Diagnosis of Diseases Caused by Bacteria, Fungi and Spirochetes

Subsection 7.10a Principles of test procedures

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Under what circumstances serological diagnosis is necessary.
2. Principle of the antigen/antibody interaction and how it can be visualised.
3. Basic function of immunoglobulins within the body.
4. Time periods within the illness when serological diagnosis may prove most beneficial.
5. Principles of several techniques that detect either antigens or antibodies in patients' serum samples.
6. Non-specific markers that may aid serological diagnosis.
7. Principles of available molecular-based tests.

COMPETENCE

Be able to:

a. Describe how serological diagnosis aids in the identification of infections caused by certain bacteria, fungi and spirochetes.
b. Describe the function of immunoglobulins within the body.
c. Describe the principles and practice of at least three different serological techniques used in the identification of pathogens.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.10 Serological Diagnosis of Diseases Caused by Bacteria, Fungi and Spirochetes

Subsection 7.10b Performance of test procedures

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Under what circumstances serological diagnosis is necessary.
2. Principle of the antigen/antibody interaction and how it can be visualised.
3. Time periods, within the illness, when serological diagnosis may prove most beneficial.
4. Principles of several techniques that detect either antigen or antibody in patients' serum samples.
5. Non-specific markers that may aid serological diagnosis.
6. Recording and reporting procedure of the result and the procedure if an inappropriate result is obtained.
7. Procedure for dealing with samples from Hazard Group 3 patients.
8. Use Personal Protective Equipment (PPE).
9. Range of serological diagnosis procedures available at other routine laboratories or reference laboratories.
10. Correct laboratory procedure for sending samples to either other routine laboratories or reference laboratories, as appropriate.
11. Correct posting and packaging procedures in accordance with current legislation.

COMPETENCE

Be able to:

a. Describe the principles and practice of the test used.
b. Process samples in a safe and correct manner.
c. Interpret and record the result accurately.
d. Recognise when a result is invalid and how to proceed.
e. Report the results in accordance with laboratory procedure.
f. Calibrate, if appropriate, and maintain the equipment.
g. Correctly label and package samples and send to the appropriate reference/routine laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

Trainer's signature:

This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.10 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce*.

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.10 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.11 Mycology
Subsection 7.11a Microscopy interpretation

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Basic principles behind microscopes and how to use them correctly.
2. Various techniques available for preparing direct films for mycelial elements.
3. Significance of reporting mycelial elements in direct films.
4. Why direct films are particularly important for skin scrapings, particularly with the clinical details of pityriasis versicolor.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient use of the appropriate microscope(s).
b. Identify the presence of mycelial elements.
c. Quantify mycelial elements and record appropriately.
d. Report results accurately and in accordance with laboratory procedure.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Candidate has been assessed by the trainer to work in accordance with standard laboratory procedures. (No other evidence is required).

Date of completion:

Trainer's name:

Trainer's signature:

Candidate has answered questions set by the trainer on the knowledge and skill components required to complete this module. (Evidence to support this is required).

Date of completion:

Trainer's name:

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One other piece of evidence chosen by the candidate as an example of their competence in this area.

Date of completion:

Trainer's name:

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This is to confirm that the knowledge and competence requirements for this section and the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.11 Mycology
Subsection 7.11b Fungal pathogens

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. How to process samples for fungal culture.
2. Different sample types available and their advantages and disadvantages.
3. Composition and method of action of various media used in the isolation of fungal pathogens.
4. Procedures available to identify fungal isolates.
5. How to give a presumptive identification of the common fungal isolates.
6. Various dermatophytes that can be isolated and how they can be differentiated.
7. How to differentiate the various *Aspergillus* species and their significance.
8. Which other fungi are normally considered significant.
9. The reason why environmental fungi can sometimes cause illness.
10. Role of the of mycology reference laboratories in the diagnosis and management of patients with fungal infections.

COMPETENCE

Be able to:

a. Demonstrate safe and efficient inoculation of fungal samples.
b. Make a presumptive identification of the presence of different fungal pathogens.
c. Fully identify the fungi present according to laboratory procedure.
d. Interpret and record the result, taking into account all the information provided.
e. Report the result accurately and according to laboratory procedure.
f. Refer isolates or samples to the relevant mycology reference laboratory.

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the candidate has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The candidate is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

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Date of completion:

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Internal Assessor's signature:

Internal Assessor's name:

Date:

Section 7.11 Reflective Practice

This section is used to demonstrate that you can relate knowledge from several areas, draw conclusions and reflect on your own performance with regard to current and future practice as an independent professional learner. It is therefore a useful source of information for your CPD profile should you be audited by the Health and Care Professions Council (HCPC).

The external examiner will review this reflective report which should cross reference to the evidence contained in the portfolio. This may lead to further discussion during the *viva voce.*

Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.11 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

Personal reflection on your training and examples of evidence for this section.

Section 7.12 Disinfection and Sterilisation
Subsection 7.12a Disinfection

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Biological hazards associated with samples sent for microbiological testing, and any subsequent waste created.
2. Range of disinfection products available, and to which microbiological processes they apply.
3. How to use disinfectants safely, in accordance with the manufacturer's instructions.
4. How risk assessments and COSHH guidelines apply to disinfectants.
5. How to deal with a leaking samples and spillages of potentially infective material and body fluids.
6. Procedure for dealing with a spillage in a Containment Level 3 laboratory.
7. Procedure for the fumigation of a Containment Level 3 laboratory.
8. Procedure for dealing with a breakage in a centrifuge.
9. Process for decontamination of equipment prior to servicing.

COMPETENCE

Be able to:

a. Safely disinfect surfaces, materials and equipment for use in the microbiology laboratory.
b. Deal effectively with leaking specimens and spillages of potentially contaminated material.
c. Describe how to deal with a breakage in a centrifuge.
d. Prepare equipment for servicing.

EVIDENCE OF ACHIEVEMENT

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Internal Assessor's name:

Date:

Section 7.12 Disinfection and Sterilisation
Subsection 7.12b Sterilisation

KNOWLEDGE

The candidate is expected to be able to demonstrate knowledge and understanding of the following:

1. Various methods employed for the sterilisation of materials for use in microbiology, including their advantages and disadvantages.
2. How to operate the autoclave, hot air sterilisers and any other sterilisation equipment used within the department.
3. Range of temperatures/pressures used by autoclaves, and when they are applicable.
4. Hazards associated with sterilisation equipment and the various health and safety legislation regarding their operation.
5. Controls/indicators used to demonstrate that sterilisation has been achieved.
6. How to process infective microbiological waste, including that from a Containment Level 3 laboratory.
7. How to dispose of clinical materials potentially contaminated with CJD products.

COMPETENCE

Be able to:

a. Describe the processes involved when disposing of infective microbiological waste, including that from a Containment Level 3 laboratory.
b. Describe the autoclave cycle for sterilising materials for use in the clinical microbiology laboratory.
c. Using a print-out from an autoclave, describe the different stages of the cycle and their significance.

EVIDENCE OF ACHIEVEMENT

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Section 7.12 Reflective Practice

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Candidate's Reflective Practice Statement Part 1.

Summarise your role within the laboratory in the context of this section.

Section 7.12 Candidate's Reflective Practice Statement Part 2.

The ethos of undertaking reflective practice should be the recognition that it is a naturally occurring characteristic of those wishing to develop. How you complete this section is personal to your own circumstances. It should be approached by recognising you have a responsibility to demonstrate self-awareness when analysing gaps in your knowledge. This is therefore an opportunity to reflect on aspects of training, the application of new knowledge and skills, and how goals have been achieved.

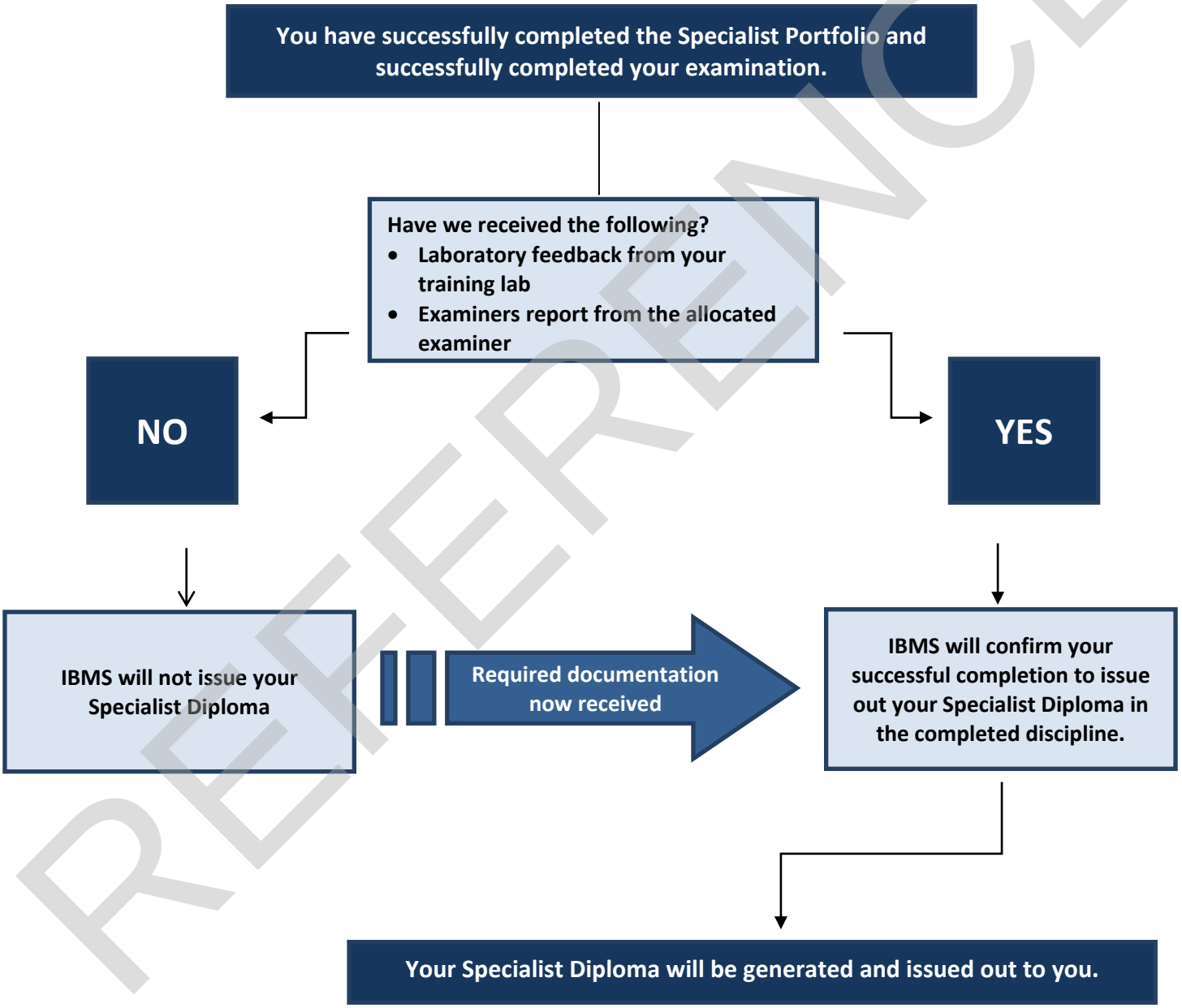
Personal reflection on your training and examples of evidence for this section.

Steps to IBMS Specialist Diploma

What is next: Your Specialist Diploma

Upon successful completion of the Specialist Portfolio, successful candidates are awarded the Specialist Diploma in the discipline(s) completed which will be issued out and sent to your provided address.

Note: The IBMS will also issue your award to your provided address.



About this document

Document title: Record of Laboratory Training for the Specialist Diploma in Medical Microbiology

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